

Greening Your Own Office

UN SDG, Post-COVID, Behavioural Change, Biophilia, EAM,
Ergonomics, Furniture, Agile, Transport, Energy: Source, Use, ICT,
Equipment, Stationery & paper, Paperless Office & Knowledge
Management, Kitchen & WCs, Waste, Accessibility, FM & PM MOBS

This Presentation on GBE:

- Find this file on GBE website at:
- <https://GreenBuildingEcyclopaedia.uk/?P=261>
- TGR version:
- <https://GreenBuildingEcyclopaedia.uk/?P=405>
- To be updated after this presentation
- with any additional feedback
- Go there for:
 - the latest update
 - versions presented to different audiences
 - the whole presentation all of the hidden slides
 - other file formats:
 - Handout, Show, PDF, PPTX
 - Links to other related GBE CPD and related GBE content

Related stuff: created preparing for today

- **Greening Office Biophilia (Brian Dump)**
- **<https://GreenBuildingEncyclopaedia.uk/?p=39346>**
- **Greening Offices UN SDG (Brain Dump)**
- **<https://GreenBuildingEncyclopaedia.uk/?p=39342>**
- **Greening Offices Post-COVID (Brain Dump)**
- **<https://GreenBuildingEncyclopaedia.uk/?p=39335>**
- **Links from there to other pages**
- **Light Nutrition added to Greening Office Post-COVID and relates to Biophilia**

Created & Updates

- 2003 for CPD
 - Created for Exhibition/Interior designers
- Presented to:
 - TGR SBS day 2 workshops
 - Mixed audiences
 - Architects, Interior Designers & Change Management
- Continuous updating:
 - Updates: 722, Slides: 408
 - Updated: 2021 for TGR In-house CPD
- Slides cherry-picked for audiences

Previous & Future Audiences:

- This presentation is for:
- Facilities managers to help them maintain and improve what they have
- Practice managers to help them to improve the way they occupy and equip sustainably
- Occupants/staff to inhabit the building adopting sustainable habits
- Architects & Interior Designers enabling others to do better with theirs
- Change Managers enabling other's management to do better with theirs

Scope and jumps

- ▶ **UN Sustainable Development Goals**
- ▶ **Post-COVID**
- ▶ **Behavioural Change**
- ▶ **Biophilia**
- ▶ **Environmental/Health/Wellbeing: Assessment Methods**
- ▶ **Ergonomics, Furniture** ▶ **Agile working,** ▶ **Healthy & Green Furniture**
- ▶ **Transport**
- ▶ **Energy:** ▶ **Source,** ▶ **Use,** ▶ **ICT,** ▶ **Equipment,** ▶ **Lighting**
- ▶ **Stationery** ▶ **Paper**
- ▶ **Sick Building Syndrome**
- ▶ **Kitchen & WCs** ▶ **Water** ▶ **Food & Drink** ▶ **Sanitaryware**
- ▶ **Office Waste**
- ▶ **Accessibility**
- ▶ **Facilities Management & Property Management** ▶ **Information**

UN Sustainable Development Goals

UN Sustainable Development Goals

- Greening Offices UN SDG (Brain Dump)
- <https://GreenBuildingEncyclopaedia.uk/?p=39342>
- Links from here to other pages

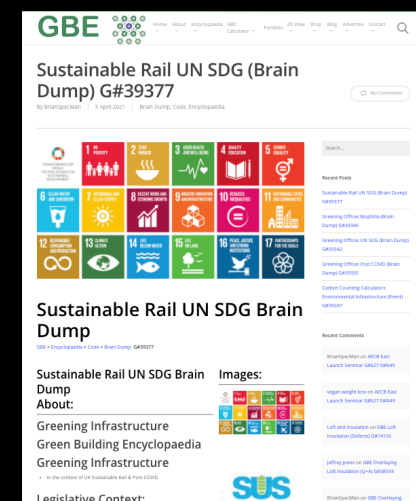
Sustainable World & UK?

- **UN SDG United Nations 25th Sept 2015**
 - 193 world leaders committed to 17 SDGs
 - 17 Sustainable Development Goals by 2030
- **Climate and Biodiversity Emergency**
 - UK Government Signed up 1st May 2019
 - Local authorities followed suit: without any idea how and patchy follow up action
- **Extinction Rebellion: frustration at lack of action by all governments**
- **Greta Thunberg's behaviour change campaign**
 - Global call to Adults to join
 - Architects Declare: Oct 2019
 - Construction Declare: Oct 2019
 - Education Declare
 - Structural & Civil Engineers Declare
 - Interior Design Declare: March 2021
- **Dictatorship Boris:**
 - 'Take back control of the borders' Refugees v Covid Incompetence
 - Hard Brexit/Border controls/Irish unrest/Riots, French and fishing limits
 - Diluting Human Rights
 - Ban all Protests no matter how bad he and his projects/actions get



UK Architects
Declare Climate
and Biodiversity
Emergency

- **United Nations**
 - 25th Sept 2015
 - 193 world leaders
 - committed to 17 SDGs
 - Sustainable Development Goals by 2030
- **Green Building Encyclopaedia**
 - <https://GreenBuildingEncyclopaedia.uk/?p=39342>
 - <https://GreenBuildingEncyclopaedia.uk/?p=>





TRANSFORMING OUR
WORLD:
THE 2030 AGENDA FOR
SUSTAINABLE
DEVELOPMENT

1 NO
POVERTY



2 ZERO
HUNGER



3 GOOD HEALTH
AND WELL-BEING



4 QUALITY
EDUCATION



5 GENDER
EQUALITY



6 CLEAN WATER
AND SANITATION



7 AFFORDABLE AND
CLEAN ENERGY



8 DECENT WORK AND
ECONOMIC GROWTH



9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



10 REDUCED
INEQUALITIES



11 SUSTAINABLE CITIES
AND COMMUNITIES



12 RESPONSIBLE
CONSUMPTION
AND PRODUCTION



13 CLIMATE
ACTION



14 LIFE
BELOW WATER



15 LIFE
ON LAND



16 PEACE, JUSTICE
AND STRONG
INSTITUTIONS



17 PARTNERSHIPS
FOR THE GOALS



Post COVID

Post CIVID

- **Greening Offices Post-COVID (Brain Dump)**
- <https://GreenBuildingEncyclopaedia.uk/?p=39335>
- **Links from there to other pages**

Behavioural Change

Behavioural Change

- **Greening Office Biophilia (Brian Dump)**
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Greening the Office

- This presentation:
- First created for a design office
- Interior and Exhibition Designer
- Aspiring to ISO 14001 needing guidance
- Added to for Architects
- Interior Designers and Graphics
- Latest update for Interior Designers
- But most is applicable to most offices and most businesses
- MCM Architecture Interiors Change Management
14/02/18 Lonely Hearts Club banned CPD



www.greenspec.co.uk

ISO 14001

**Environmental Legal
Compliance**

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopedia.uk>

Making changes

- There will always be excuses:
 - for status quo prevails
 - from those that dislike change
 - from them that cannot be asked
- We need to look for solutions and overcome the barriers
- There is an increasing urgency
- Government was investing £m s through agencies providing free advice
 - Envirowise, WRAP, NISP, London Remade, LSx

Sustainable Accommodation?

- Occupy a building which has all the right environmental credentials
- Commission your own building with all the right environmental credentials
- All the right Environmental Credentials for buildings and their services are the subject of separate presentations
- Green up what you have

Sustainable Business

- Not the scope of this presentation

Sustainable Outputs

- Learn from how you improve your office
- Enable your customers to do the same
- Brief Services Engineer to do the same

Cut Your Carbon Board Game

<https://www.ech2o.co.uk/cut-your-carbon-the-boardgame>



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www.greenspec.co.uk

Come Off It Day

www.comeoffit.org.uk

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at <https://greenbuildingencyclopaedia.uk>



Greening Your Business

UK Government Support

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<https://GreenBuildingEncyclopaedia.uk>

Making changes: false barriers

- Example: Recycling paper
- Excuse: Security & Confidentiality?
- If you are not Gov, MI5, MoD or BoE
- How good is putting it in the bin with other rubbish?
- When the black bag is on the pavement
 - Fox and Pigeons scavenge black bags
 - it can burst and drawings spill all over the street
 - I have seen it happen at Benoy's office
- Who is looking in your bin anyway?

If its confidential shred it



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Confidential?

- Avoid electric shredder, use manual shredder for the exercise
- US Army Gulf war experience
- Shred it two directions
- Compost it?
- BofE notes and Smile Plastics
- BEN building board



Ambitions v Recession

- Letting agents
 - Major fit-outs ripped out many times
 - Fit-out waste mostly to landfill
- 1980s boom
 - BCO considered standards
 - CAT A, B & C fit outs
- Late 1980s & Early 1990s recession
 - Standard forgotten about?
- Coroner virus: time for change
 - What will be left behind?

Biophilia

Feeling or being closer to nature
Visual, Touch, Audio, Smell, Taste
Or psychological trickery
Beneficial for workers in the workspace

UN SDG 3

Good Health & Wellbeing



Biophilia

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- **Links from there to other pages**

Biophillic Design

- Daylighting and views out:
- Outside Views: or
- non-transient workers workstations within 7 m of internal biophilic features:
 - green walls, water features, or vegetative scenes, even plants
 - viewed from within 65 degrees rotation from the normal working position at those workstations; or
- Access to natural daylight
- Fresh air Ventilation
 - Low CO₂ levels
 - Low VOC levels
- Lighting:
 - varying intensities of light and shade over time to create conditions that occur in nature.
- Internal finishes, fittings and furniture:
 - utilize symbolic references to contoured, patterned, textured or numerical arrangements that persist in nature.
- Refuge & Prospect:
 - work and break areas users sit with backs at 2m maximum from wall or low level screen
 - can view the point of entry and circulation into or through the space
- Breakout space away from normal work station

Biophilic Plants & Blinds

- Biophilia views of nature
- Encourage the use of plants of the correct species
- To clean air
- Fragrance
- To talk to
- Wood slat blinds



Library & Shop Window: Biophilia

- Views out to daylight and sunlight
- Hardwood veneers on furniture
- People enjoy seeing wooden surfaces
- Veneers without lacquer feel real
- But its missing in the office space

Hardwood on the stairs

- Avoid the lift to enjoy the stairs
- Absorbent timber in an acoustic noisy stairwell
- Texture untouched by hand
- Go barefoot to enjoy the timber!
- Temperature may be appreciated if bare footed
- But its missing in the office space

Plant Based Resin

- Phenix Biocomposite desk
- Annually renewable, sustainable and recycled resource
- Recycled paper, soy bean resin and colour additive
- 1.5 times strength of oak
- Worked similarly to wood
- 5 – 15% lighter than wood
- Good moisture resistance
- Formaldehyde-free
- 70% less energy
- Biophilia: Feel of hardwood



Office Reception Back wall

- Posh Show walls
- Venetian Polished Plaster
- Not local materials
- Not local Tradesmen
- Not very natural appearance
 - Some look like plastic
- Alternative: Rammed Earth?

Rammed Earth Walls

- Abundant and Natural
- Recipe can be determined on site
- Thermal, Acoustic & Moisture mass
- Fire resistant
- Load-bearing (moisture movement)
- Absorbs radiation, smells and moisture
- Hygroscopic
- any shape
- many ingredients, colours & textures
- Sculptural & Artistic opportunities
- Recyclable & Reusable
- Needs temporary formwork
- Biophilia, Natural, Visual, Tactile, Smell? Taste!
- Waste disposal back to earth





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Green Personal Computers

IAMECO

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopedia.uk>

← Eco computer cases

← Aluminium cases

← Eco computer monitors

← Eco computer keyboards

← Eco computer mice

← Special offers

← Information

← Press Area

← Downloads

← Contact us



http://www.iameco.com/downloads/iameco-15_17_19.pdf - Microsoft Internet Explorer





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8.26 x 11.69 in 18 of 31

iameco wooden mice

- ← [iameco computers](#)
- ← [Eco computer cases](#)
- ← [Aluminium cases](#)
- ← [Eco computer monitors](#)
- ← [Eco computer keyboards](#)
- [Eco computer mice](#)
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- ← [Press Area](#)
- ← [Downloads](#)
- ← [Contact us](#)



iameco-Beech-Optical

iameco beech wooden mice
Description: 3D USB Optical mice
made of solid beech wood

Cost: €39.99 incl. VAT



iameco-Ash-Optical

iameco ash wooden mice
Description: 3D USB Optical mice
made of solid ash wood

Cost: €39.99 incl. VAT



iameco-Sapele-Optical

iameco sapele wooden mice
Description: 3D USB Optical mice
made of solid sapele wood

Cost: €39.99 incl. VAT



iameco-Beech-Optical

iameco beech wooden mice
Description: 3D USB Optical mice
made of solid beech wood

Cost: €39.99 incl. VAT



iameco-Ash-Optical

iameco ash wooden mice
Description: 3D USB Optical mice
made of solid ash wood

Cost: €39.99 incl. VAT



iameco-Sapele-Optical

iameco sapele wooden mice
Description: 3D USB Optical mice
made of solid sapele wood

Cost: €39.99 incl. VAT

Welcome to iameco computers

- ← [iameco computers](#)
- ← [Eco computer cases](#)
- ← [Aluminium cases](#)
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updateable

upgradable

re-usable

recyclable

IAMECO I am Eco

- MicroPro PC manufacturer Ireland
- MicroPro X-PC
- Green PC aiming for 1st EcoLabelled PC
- MicroPro IAMECO PC
- Modular design, upgradeable for life
- Disassembly: 1.5 minutes, 1 person, every screw is the same
- Complies with:
 - WEEE 2002/96/EC Waste Electrical and Electronic Equipment
 - RoHS 2002/95/EC Reduction of Hazardous Substances
 - EuP 2005/32/EC Energy Use in Products
- Aiming for: Eco Label 2001/686/EC (AMD May 2004)
- Biophilia: Natural, Visual, Tactile
 - Timber casing: beautiful object desirable to keep forever

PC Eco Label

2001/686/EC (AMD May 2004)

- CPU System Unit:
 - 4 watts sleep
 - 2 watts off
 - Energy management by default
- Monitor:
 - 2 watts sleep
 - 1 watt off
 - Shut down 30 minutes default setting
- Modular design, upgradeable and dismountable
- Noise: 4 dB(A) and 4.5 dB(A) accessing hard disk
- Take back scheme

Environmental Assessment Methods

UN SDG 4 Quality Education



UN SDG 11 Sustainable Cities & Communities



BREEAM

- Building Research Establishment
- Environmental Assessment Method
- BREEAM for New buildings e.g. Offices
 - Building Fabric
 - Possible to get 'Outstanding' with 100% glazed 100% air conditioned building
- BREEAM Refurbishment for Existing Offices
 - For Fit-outs and Refits
- BREEAM Bespoke for permutations
- BREEAM In Use
- And a whole lot more: Civils, Community,
- Business as Usual with a Green tick
 - Admin heavy
 - Number crunching heavy, recording what you did wrong
 - "If we did not have to follow BREEAM we could have made a greener building"
 - Fundamentally fails on Behavioural change

	Non-domestic													Domestic			
	Bespoke	Offices - Design	Offices - Fitout	Retail - Design	Retail - Fit Out	NEAT (NHS)	Healthcare	Prisons	Schools	Courts	Industrial ??? with offices	Further Education	EcoHomes	Multi-Residential	Code for Sustainable Homes		
Upper Floors ??? Mezzanines	Yes	Yes	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	???	Yes	Yes	Yes	Yes	Steel mezzanine in industrial buildings? No impact?	
Ground Floors	???	???	okay	???	okay	???	???	???	???	???	???	???	Yes	???	Yes	Subsoil to excavate, hardcore and concrete to fill: No impact?	
External Walls	Yes	Yes	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Roofs	Yes	Yes	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Floor Finishes	Yes	???	Yes	???	Yes	Yes	Yes	???	Yes	Yes	???	Yes	???	Yes	???	Offices assumes Shell and Core but many do Cat A fit out; Retail better; Indoor Air quality?	
Windows ??? Rooflights	Yes	Yes	okay	Yes	okay	Yes	Yes	???	Yes	Yes	???	Yes	Yes	Yes	Yes	Prisons still have windows; Industiral have rooflights	
Internal Walls/Partitions	Yes	???	Yes	???	Yes	Yes	Yes	???	Yes	Yes	???	Yes	Yes	Yes	Yes	Offices assumes Shell and Core but many do Cat A fit out; Retail better; Indoor Air quality?	
Suspended Ceiling Finish	???	???	Yes	???	Yes	???	???	okay	???	???	???	???	okay	???	okay	Offices assumes Shell and Core but many do Cat A fit out; Retail better; Indoor Air quality?	
Hard Landscaping	Yes	???	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	???	Subsoil to excavate, hardcore, hard materials to fill: No impact?	
Boundary Protection	Yes	???	okay	Yes	okay	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	???	Absent in urban but not in rural; why not CfSH? Insignificant compared to ground floors/foundations	
Insulation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	But material used in elements are not identified	
Added by GreenSpec																	
Foundations	???	???	okay	???	okay	???	???	???	???	???	???	???	???	???	???	Subsoil to excavate and concrete to fill holes: No impact?	
Rooms in roofs	???	okay	Okay	Okay	okay	Okay	???	Okay	???	Okay	okay	???	???	???	???	Very applicable to domestic	
Stairs	???	???	???	???	???	???	???	???	???	???	???	???	???	???	???	Concrete or steel stairs: No Impact? Timber better?	
Paints and wall paper	???	???	???	???	???	???	???	???	???	???	???	???	???	???	???	Paints: No impact? Hazardous waste? Indoor Air Quality?	
Doors	???	???	???	???	???	???	???	???	???	???	???	???	???	???	???	Glass steel timber doors: No impact? No difference?	
Services	???	???	???	???	???	???	???	???	???	???	???	???	???	???	???	Metal and plastics: no impact?	

Legend:

Yes: BRE consider it relevant

???: BRE do not consider it relevant;

GreenSpec consider it relevant, why not?

Okay: BRE do not consider it relevant, GreenSpec agree

LEED

- **American alternative to BREEAM**
 - Made by Ex BRE people
- **Some say easier to use**
 - If you're American
- **Possible to get Platinum for Fully glazed air conditioned building**

GreenStar

- Australia
- More commercially minded
- Engages with money and expenditure
- Considers CAPEX v OPEX
- Commerce can engage with it readily



RICS Ska Ratings

Office Fit -out
EAM

Sustainability Rating scheme

1

Office, Retail and now Higher Education schemes
Good Practice Measures

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

Ska

- Engages with real issue
 - Not just a tick box exercise
- Over 100 issues Good Practice Measures (Not Best)
 - Ranked in importance
- Credits available for
 - reuse of existing installations
 - use of generic materials in BRE GGtS,
 - Products from GreenBookLive or GreenSpec
 - Services from ECA: WTL, ETL,
 - Products with EPD (despite their violet content)
- BrianSpecMan on Steering groups for >5 years
 - Helped develop Higher Education version

SKArating®



- Office, Retail and Higher Education
- Fit-out and refit or refurbishment
- Environmental, Health & Wellbeing
- Energy, Water,
- Waste, Resource Efficiency, etc.
- Good Practice Measures
- Low cost assessment,
- Addresses more than BREEAM



Ska rating

Good practice measures
for offices

Lighting controllability front-of-house



Criteria

Time controls are installed which have the capability to:

- switch off display lighting after main trading hours for cleaning, restocking, etc.;
- reduce lighting levels after main trading hours where there is no separate display lighting; and
- switch to window display lighting only out-of-hours.

For window displays:

Time controls are installed which have the capability to:

- switch off window display and exterior lighting when there is no longer significant pedestrian traffic outside (e.g. late evening); or
- ensure that window display lights are always turned off during daylight hours.

Or:

Daylight controls are installed which have the capability to:

- automatically alter lighting levels in accordance with natural daylight levels for all window areas including window displays.

Scoping

This measure applies if new light fittings and/or controls are being installed, modified or replaced in retail front-of-house areas.

Assessment

At design stage: check specifications and drawings.

At handover stage: check as-built drawings, and/or carry out a site visit to check the controls that have been installed and their locations.

At occupancy stage: if controls have been changed or added then repeat the handover stage assessment. If this measure was achieved at handover stage and controls have not been changed or added, this measure will be achieved by default.

Rationale

Good practice dictates that retail front-of-house lighting should be controlled by timeswitch.

If you would like to comment on this measure please email ska@rics.org

Fit-out
Benchmark &
Assessment
Tool

Energy and CO₂

Issue

ID **D49**

Rank **1**

Ska Retail
Version **1.0 2012**

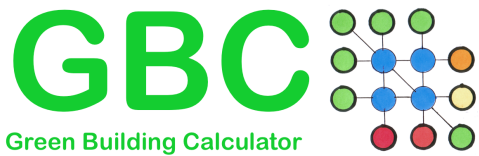
www.rics.org/ska

Page 1 of 2

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WELL

- Health and Wellbeing focus
- Greater range than BREEAM & Ska
- Design Assessment
- Construction and materials
- Interiors
- Very expensive assessments
- Follow the rules without accreditation



<https://GreenBuildingCalculator.uk>



<https://GreenBuildingEncyclopaedia.uk>



<https://GBELearning.com>

Fitwell

BBA Building Biology Association



- Healthy Building Design Manual
- German standard started in the 1960's
- Entered the UK market 2017
- Training course for designers
- Intrinsic skill rather expert consultants
- 4 half day introduction seminars run in conjunction with TGR The Green Register



SEDA Guide

Design and Detailing for Toxic Chemical Reduction in Buildings

CPD topic

1

Another GreenBuildingEncyclopaedia CPD to download soon



S E D A
Scottish Ecological
Design Association



SCOTTISH EXECUTIVE

Design and Detailing for Toxic Chemical Reduction in Buildings

[home](#) | [introduction](#) | [context](#) | [issues](#) | [benign construction](#) | [costs](#) | [details](#)

Welcome

Welcome to the website for the SEDA guide on Design and Detailing for Toxic Chemical Reduction in Buildings, the third web mounted design guide commissioned by [SEDA](#) - the Scottish Ecological Design Association - and funded by a [Sustainable Action Grant](#) from the Scottish Executive.

The guide is divided into six chapters; chapters one to five examine the context and principles of designing for Toxic Chemical Reduction. Chapter six shows five typical construction details together with alternatives which optimise the potential for each detail to exploit toxic chemical reduction techniques, along with explanations and costs. These five are available as separate [pdf downloads](#) in addition to a pdf download for the [entire document](#).

The research presented on this site was prepared by [Gaia Architects](#), [Gaia Research](#) and [John Gilbert Architects](#).

Also in [this series of guides](#):

Design Guide 1: [Design and Detailing for Deconstruction](#)

Design Guide 2: [Design and Detailing for Airtightness](#)



Pfennigacker A Healthy
School. Architect
Joachim Eble
Architects. Photo
Howard Liddell

Contents

Defra Consultation

- **GPP Government Public Procurement**
 - EU driven
 - UK standards being set higher (Policed?)
- **Furniture Industry Consultation meeting**
 - Nov 2009
- **Public consultation on draft standards**
 - Completed
 - Overwhelmed by manufacturers
- **BrianSpecMan observed their stance:**
 - “How ill are we permitted to make people”
- **Herman Miller’s response: Aeron Chair**

GYO Facilities Management



Sustainable Facilities & Property Management

Faber Maunsell's MOBS website

<https://www.mobs.org.uk>

no longer managing and occupying buildings sustainably

Limited content on Google Archive (I have a lot on file)

Another one of GBE's 1000 CPD/Lecture files to download

<https://greenbuildingencyclopaedia.uk>

Transport

And avoiding it in COVID

UN SDG 9 Industry, Innovation & Infrastructure

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



UN SDG 11 Sustainable Cities & Communities & Transport





Sustainable Transport: People

**Transport to and from home and Office,
between Office and Site or meetings
and within the Office**

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Sustainable Transport: Goods

CPD topic

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Transport

- **London's streets are normally heavily polluted**
 - Despite Clean and low pollution zones
 - COVID made a significant change to traffic and pollution
 - Busses and bikes could move more easily
 - But other vehicles are returning slowly
- **Commuting: by Public Transport:**
 - Electric trains, Hydrogen bus,
 - Dedicated bio fuel or green electric power,
 - All pump fuel has a small % of bio based fuel,
 - Crown Oils announced you can buy dedicated bio-fule at special pumps May 2021
- **Taxis for one-person rides do not make environmental gains,**
 - idling taxis in queues or crawling traffic are bad news,
 - diesel taxis are bad, taxis in a hurry are bad
 - low emissions taxis might not be all that good
- **Local commuting:**
 - by bicycle avoiding congested routes, parking space demand
 - Bike and bus only routes significantly better, Southwark has one
 - More added during COVID hopefully not temporary but remain long after
- **Bike Face masks with air filter technology**
 - Some of the best technological developments coming out of this arena
 - Better than being a pedestrian
- **Face masks during COVID, might continue long after**

COVID latest advice 07/05/21

- CDC (USA) did not accept aerosol transmission until October 2020
- WHO updated website without public announcement May 2021
 - From: Transmission by respiratory droplets – which are expelled from the mouth and fall to the ground – between people in close proximity
 - To: Transmission by respiratory droplets and aerosols that can float in air – in poorly ventilated and/or crowded indoor settings, aerosols can remain suspended or travel along air currents, further than 1 m and 2 m
- Potentially much safer outdoors
- Make sure indoor spaces are well ventilated with air filtration as necessary
 - No recirculating air, only heat recovery
- Open windows if practical (spring is here, followed by summer, and traffic)
- Avoid shouting, singing and high energy/impact sport in close proximity
- 2 m separation is probably not enough over longer periods indoors
- Wear masks all the time (ignoring distance rule) and pay more attention to fit
- Super-spreading events occur predominantly indoors
 - (confirmed by a database of cases)
 - Ireland recently reported 0.1% of cases traced to outdoor transmission
- Erecting hard barriers between people indoors may be ineffective
- <https://www-nytimes-com.cdn.ampproject.org/c/s/www.nytimes.com/2021/05/07/opinion/coronavirus-airborne-transmission.amp.html>

COVID & Travel

- **Buses, trains and underground:**
 - Close proximity between passengers
 - ventilation will draw aerosols across passengers
 - mask good fit essential
- **Cycling:**
 - Passing through air that somebody else breathed first, diluted in open air
 - If they are coughing or spitting steer well clear, pull back or overtake
- **Car interiors: shared, no coughers, masks on, ventilation on, not circulating**
- **Petrol station shops: Coughing in aisles aerosols can pass over shelves to next aisles**

Office Share Bikes and COVID

- Insurance promoted health & wellbeing
- Showers for cyclists, lockers for change
- Under-counter folded Brompton bikes
- In reception to inspire clients/visitors
- Clean all touch points before/after use
- Push bikes for health and fitness
- E bikes for less able & clocking miles
- Water flask and flask top up
- Masks for: (close fit essential in all cases)
 - Vehicle air pollution
 - COVID protection (outdoor air is safer)
- Marketing opportunity: Practice Livery

Conference Calls

- Avoid travelling: train or plane
- if you have broadband open lines:
 - at no extra cost
- Use Skype on Broadband no extra cost
- Skype in and Skype out
 - landlines to internet, & vv, Skype handsets
- Multi person/multi location meetings on the phone/computer
 - Video conference calls
- But beware not everybody engages well

Pandemic Webinars

- **Skype multiple person calls: challenging**
- **Zoom or MS Teams**
 - GoToWebinar, GoMeeting and others
- **Webinars, Meetings, CPD, Video,**
- **Survey, Chat, Q&A & Break out Rooms**
- **Mic on/off**
- **Video on/off**
- **Ask the speaker**
- **Hand up**
- **Recording > YouTube & Vimeo**
- **Break out rooms get better engagement**
- **Room visits by speakers**
- **Upon arrival whilst waiting for others to arrive,**
 - bump into break out rooms to break the ice, facilitated if needed
 - ensures working groups can start quicker
- **Marketing Opportunity: Practice Livery as backdrop**

Moving about in office

- Don't use lifts between adjacent and close floors, consider other tenants
- Walk up and down between floors
- Discourage use of lifts in all but taller buildings
- Lift up many floors,
- Walk down gravity assisted
- Avoid single person lift rides
- Use lifts if burdened with stuff
- Natural wood finishes
- Biophilia in the Lifts
- But heavy lacquer removes tactile opportunity



Energy Supply

Grid supply, Dispersed Generation and
Renewables

UN SDG 7

Affordable & Clean Energy





Energy Supply

**Grid supply, Dispersed Generation and
Renewables**

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

Energy Use



Carbon Reduction Commitment & Energy Efficiency

April 2010 CRC a new ETS
Emissions Trading Scheme

Carbon Reduction Commitment

- Major driver for Big Business and Government
- Pay large sums of money for carbon usage
- Reduce use to claim it back again
- Fail to reduce and loose it
- Changed from an incentive to a tax
- Then Withdrawn
- EAC Public Inquiry Carbon & Climate
 - 15th May 2021
 - Reinstate CRC equivalent?

Fuel Choices 2009

UK Carbon Content of Fuel		
	kgCO ₂ /kWh	Fuel Factor
Biomass	0.025	0.14
Coal	0.33	1.78
Grid Electricity	0.537	2.90
LPG	0.214	1.16
Natural Gas	0.185	1.00
Oil (Gas oil)	0.252	1.36
Renewable		
2009 (Carbon Trust)		

- Carbon factors: Natural Gas: 1.0 Electricity: 2.9 (Carbon Trust 2009)
- Avoid Grid electricity, unless green tariff,
- Use Grid natural gas
 - (but gas into buildings is not easy)
- Use PV or Wind (if good solar or wind access)
- Use Gas appliances in preference to electricity
- Including Gas Fridge (not easy to find)
- If stuck with electric use Class A++ appliances
- Use Class A++ appliances in all cases

Fuel Choices 2021

- Carbon factors: Natural Gas: 1.0 Electricity: 1.0 (Government 2020)
- Grid electricity now equal to Gas in terms of carbon emissions
- Small % of biogas in mains gas supply
- Offshore wind + onshore PV farms increased considerably
 - Driven by FIT payments, good investment, then shrunk
- Still choose 100% green tariff if you can
- Use of grid natural gas will be denied to new residential soon
 - (gas into buildings is not easy)
- Use on site PV or Wind (if good solar or wind access)
- Still choose Class A++ appliances in all cases

Electrical Energy Efficiency

Smart metering & Controls
Power, Lighting, Appliances,
Heating, Batteries, Computers,
Reduction in use, Limiting waste
Voltage Optimisation

Smart metering

Metering Monitoring & Controls

Whole building monitoring

- **Electrisave**
- <https://www.electrisave.co.uk/pages/order>
- **25% energy saving possible**
- **If you type in discount code of "ETHECO" on the order form, you will get a £5 discount**
- **Electrisave will pay Etheco a commission to help them maintain and improve their website.**



Clip your electrisave onto the live cable which comes out of your meter into the fuse box.

Efergy

- Energy Saving Smart Meter
- <https://efergy.com/home/>

Efergy

- **Energy Saving Smart Meter**
- <https://www.efergy.com/en/>
- <https://efergy.com/home/>
- **£44.95**
- **£5.00 off**
- **Voucher Code: E1/00GY100**
- **Additional Sensor: £4.95**

efergy - home energy saving meter - Windows Internet Explorer

http://www.efergy.com/en/

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you can't manage what you can't measure

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watt is this?

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the real time electricity monitor

this is efergy,
the energy saving meter

features

view demo

FAQ

CE RoHS

Customer Service:
08450 177 769

Buy additional sensors

NEWS

Power use in homes is increasing - real-time monitors identify areas where you can SAVE power and reduce your electricity bills

HOW TO INSTALL

It couldn't be easier! Install yourself the efergy meter in less than 30 seconds. Click on the image to see the VIDEO.

Electricity Monitor Owl

- www.electricity-monitor.com/
- <https://theowl.com>



intelligent wireless **energy monitoring** and **heating controls**

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DIY Kyoto

- <https://smarthomeenergy.co.uk/goodbye-energeno-diy-kyoto-wattson-0>
- Wattson 01
- Real time read-out of energy consumption of building
- Real time cost read-out too
- www.Diykyoto.com
- Recycled school furniture
- Hand made was £395.00
- Now into batch production RRP £149.50
- pre-orders now on-line at £125.00
- Quantity discounts available
- USB connection for community interface





Electricity Monitor

- [https://www.electricity-monitor.com/
index.php?
gclid=CM-55uahozECFR9WMAodFwzrtg](https://www.electricity-monitor.com/index.php?gclid=CM-55uahozECFR9WMAodFwzrtg)

Chargers, Transformers Low voltage circuits

Heat emitters

SSO Switched Socket Outlets Transformers and Chargers

- Turn off transformers and chargers if nothing being charged to avoid :
 - Energy use & bigger bills
 - Heat gains in summer
 - Carbon dioxide added to atmosphere
- Always switch them off if not in use

Railway Offices

Phone Chargers

“According to research by O2 only 5% of the energy used by the UK mobile phone chargers is actually used to charge phones. The rest is used when the charger is left plugged in but not switched off at the socket.

Consequently this , causes 50,000 tonnes of CO2 to be released into the atmosphere Annually”.

Turn them off

Low Voltage Circuits

- Add 9-12 volt circuit to avoid all the transformers that generate heat adding extra load to cooling & ventilation systems in summer
- If it's not switched off/unplugged its probably drawing energy
- Improve this arrangement with individually switched socket outlets (ISSO) (without lights?)
- For clients installs: instruct they are all switched off by installer until needed by user



Home made ISSO



Sustain IT

- <https://www.sustainit.org/index.php>
- **Gone now**
- **Promoted low voltage circuit for kit**
- **Combine with PV before inverter**
- **Use as much indoors before giving to grid for the diminishing FIT payout**
- **Latest: lawyers chasing FIT reductions as miss-sold promises**

Electrical Energy Efficiency

Appliances

Energy Efficiency

- ICT Kit
- Kitchen equipment
- Domestic Appliances
- White goods
- ~~PriceXtra gone now~~
- Electric Supply Modulation
 - Voltage optimisation

Energy Technology List



- Enhanced Capital Allowance (reduced Tax) for your customers **now withdrawn**
- Equipment chosen from the ETL Energy Technology Lists
- Hand dryers
- Water heaters
- Etc.

Energy Efficiency

- Microwave very Energy efficient compared with Cookers
- Short time for staff lunches
- Faster turn round
- Questionable nutritional/health value



Energy Efficient Appliances

- Choose A++ rated energy, water and noise efficiency appliances,
 - Dishwasher,
 - Microwave,
 - Cooker,
 - Coffee making,
- Significant reduction in energy use over life of appliance and office
 - Fridge, (via Voltage Optimisation)
 - Freezer, (via VO)
 - Water-cooler/chiller, (via VO)
- Put your own rinsed mugs and spoons in there yourself



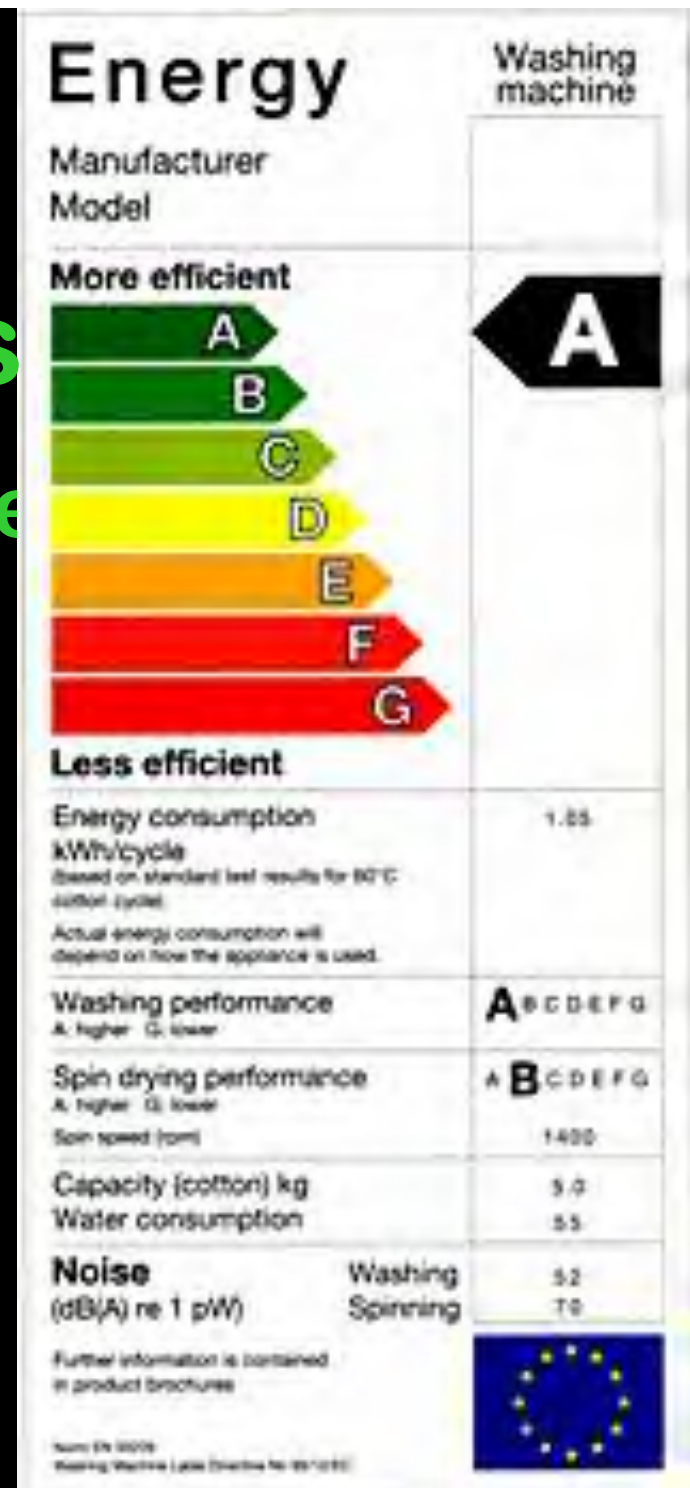
Domestic Appliances

- Overall Efficiency
- Energy Consumption
- Independent
- Best in range



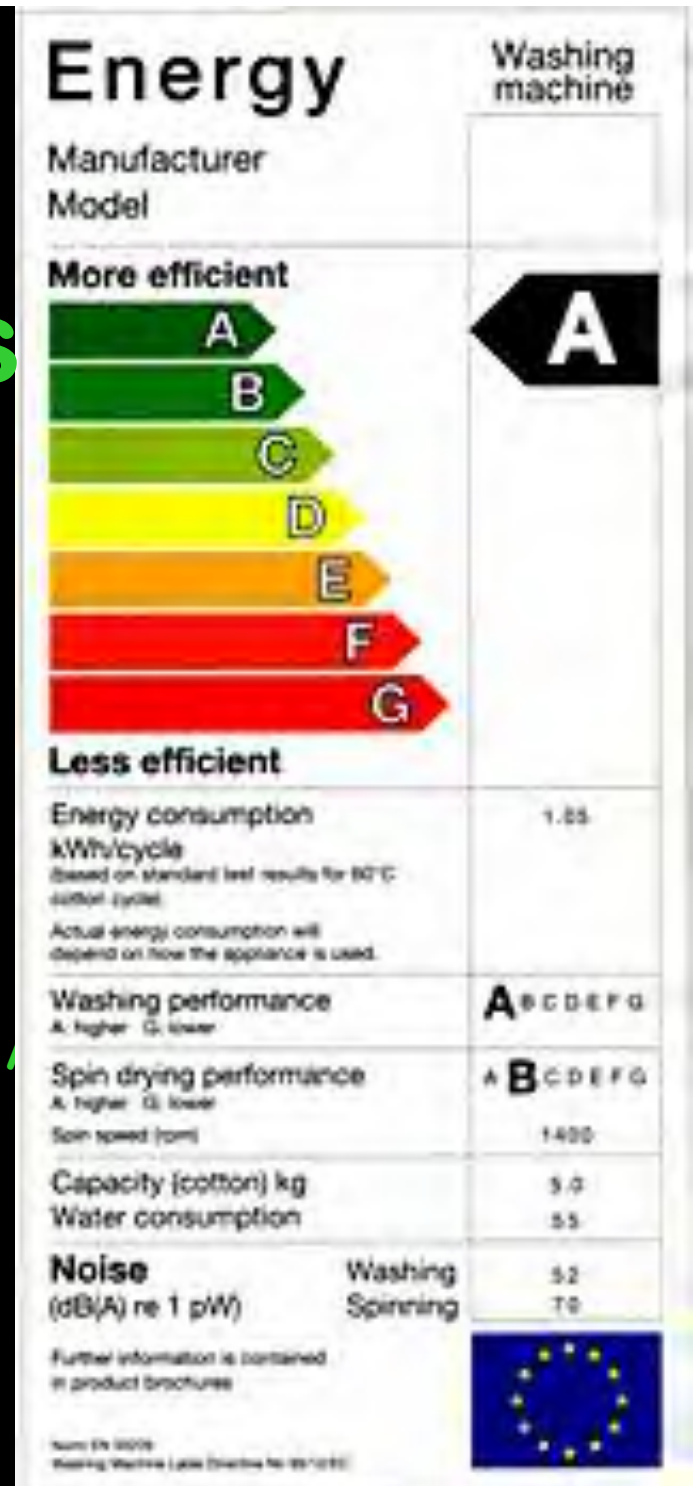
White Goods Domestic Appliances

- A+, A, B C, D, E, F & G labels
- Overall Efficiency
- Energy Consumption
- Capacity
- Water consumption
- Wash performance
- Spin performance
- Noise levels



White Goods Domestic Appliances

- **FRIDGE/FREEZER:**
 - Energy Efficiency to EN 153: Class A+
 - CFC and HCFC - free insulation and coolant.
- **DISHWASHER:**
 - Energy Efficiency to EN 50242: Class A+
- **WASHING MACHINE**
 - Energy Efficiency to BS EN 60456: Class A+ A+ A
- **DRYER:**
 - Energy Efficiency to BS EN 61121: Class A+



<https://www.pricextra.com> Gone now




Price Xtra : Dishwashers - Microsoft Internet Explorer

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Address <http://81.29.69.220/~priceplus99/electrical/dishwashers/top10.php> Go

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Dishwashers

Manufacturer: Sort by:

These are the top ten Dishwashers for your selections...

Manufacturer: ALL

Dishwashers	Power Consumption (Watts)	Cost per Wash (pence)	Cost per Wash (pence)
1. Matsui MTT1W	71 watts	10.488 pence	10.488 pence
2. Bosch SKT5102GB	70 watts	10.64 pence	10.64 pence
3. Indesit IDL 40	74 watts	11.432 pence	11.432 pence
4. Gorenje GVI553S1	80 watts	12.06 pence	12.06 pence
5. Bosch SR543C22G	80 watts	12.06 pence	12.06 pence
6. Bosch SR545E22G	80 watts	12.06 pence	12.06 pence
7. Bosch SR555L12	80 watts	12.06 pence	12.06 pence
8. Zanussi ZSF4126	80 watts	12.06 pence	12.06 pence
9. Indesit DI 450	81 watts	12.328 pence	12.328 pence
10. Indesit IDE44UK	81 watts	12.328 pence	12.328 pence



Reduce
Clothes
Washing
Soap
Use



ecoballs™



Voltage Optimisation

Voltage Optimisation

- Take the fluctuations out of the mains voltage (not the 50Hz cycle)
- If the kit needs 210 Volts don't permit peaks that exceed 210 V into the kit
 - Reduce consumption
- Important for
 - Fridges, Freezers, Air-conditioning, water chillers
- Available for
 - domestic, commercial, industrial,
 - whole supply or individual appliances

EPS 388

(Commercial)

- This gadget is plugged into a socket and it acts as a electricity modulator on your ring main.
- Basically it will stop peaks and thus smooth out your electricity flowing around the office.
- This makes your appliances work more efficiently.
- Estimates vary between 10% and 20% saving on electricity bills.
- You just plug it in and away it goes, saving you money all the time.
- Large versions are available for schools, offices etc.
- The EPS 388 (industrial applications) is £ 69 inc. VAT.
- <https://power-save.com/kit.html>

Fridge/Freezer/Appliance efficiency



- Smooths out the fluctuations in voltage
- By turning off the supply to the fridge during peaks and back on when it falls
- Savawatt's
- SavaPlug
- SavaControls

PowerSafer

- This is a handy gadget for people who have a tendency to switch the TV off using the remote only.
- Basically it acts on the remote signal and switches the TV off for you, thus saving you from paying for 'stand-by' time.
- You may know someone who might benefit from one of these.
- Cost £ 23.50 inc VAT.
- www.powersafer.de/en_EN/index

Electrical Energy Efficiency

Heating

Heating Efficiency

- **Users and bad habits**
 - Electric heating was wrong its okay today
 - Renewable Electric heating is okay
 - 24/7/356 heating is a disaster
- **Access to Controls**
 - Accessible hierarchical controls
- **Appropriate Heating and Controls**
 - Internet of things
 - Smart phone remote control
 - Energy Savings to be had with joined up thinking

Energy: Heating

- Make sure heaters are on a separate circuit and switch it off in summer
- Avoid cable switches below tables
- Too much trouble!
- I am not paid enough to do that too!



Appropriate Heating & Controls

- To suit building fabric mass or lack of it
- Automatic Controls and human override with return to default after set time
- Accessible TRV at top of Radiators
- Not set too high
- Not set to individual requirements
 - Unless ownership of space
- Not Electric heating 2009
- Electric heating 2020

Internet of tanks

- Internet of Things meets HW Cylinder
- Communicate with your Hot Water via your mobile
- Control heating of hot water: Mixergy
- <https://greenbuildingencyclopaedia.uk/blog/products-blog/smart-hot-water-tank-blog/>



GBE 
www.GreenBuildingEncyclopaedia.uk

CAP'EM
Cycle Assessment Procedure for Eco-Impacts of Materials



Ownership of Space

GBE Lectures
LSBU 2016
RIBA Part 1 Year 3

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

Lighting

Artificial Lighting

- Natural Light
- Lighting Adds Heat
- Energy Saving
- Lighting Controls
- Light bulbs and Lighting products
- Light bulbs off
- FM Cleaning Contracts
- External lighting & Design & Controls
- Light Pollution

Energy: Lighting

- Don't leave lights and other equipment on if not needed
- Partners out looking for work
- No need for lights on all day



Energy: Lighting adds heat

- Experiment with turning lights off in summer to see if over-heating can be avoided
- Require the cleaners to turn off the lights as they leave the floor



Energy Saving

- If Legislation does not require it
- why keep it on?
- Turn it on in the event of a fire
- PIR could turn it on if people present
- 1 m lobby with glazing does not need a light on



Use of Natural light to avoid artificial light

- If naturally lit
- Why artificially too?
- Light level detectors can turn lights on
- Lights left on 24 hours every day and night
- Time controls turn them off
- Indoors and out



Lighting

- Don't use Tungsten light bulbs
- Illegal to sell after 2011 UK, 2010 Aus
 - But re-emerged into market as antique
 - Steampunk look
- Use fluorescent lamps (poor CRI)
- Use Low-energy long-life bulbs (Poor CRI)
- Use LED spot lights (intelligently) (Bad CRI)
- Don't need to compromise on light quality to save energy
- Make Light Matter: Webinars Light Nutrition
 - CRI 90 and above Colour Rendering Index
- Choose efficient fittings and lamps but do not compromise on human perception of light quality

Light Nutrition

- Different light technologies
- Different light emission spectrum
- Not all are wholesome for humans
 - CRI 90 and above okay
- Eyes have additional functions over sight
 - health and wellbeing:
 - rods and cons in retina
 - 2 decades ago discovered their uses
- Conferences on the subject
- UK specialists via MaD community



GBE
www.GreenBuildingEncyclopaedia.uk

CAP'EM
Cycle Assessment Procedure for Eco-Impacts of Materials



Control Systems

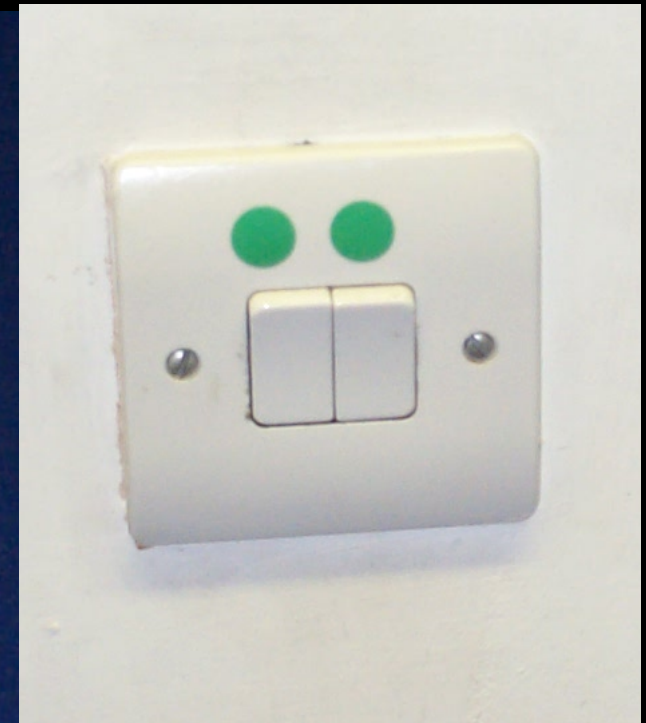
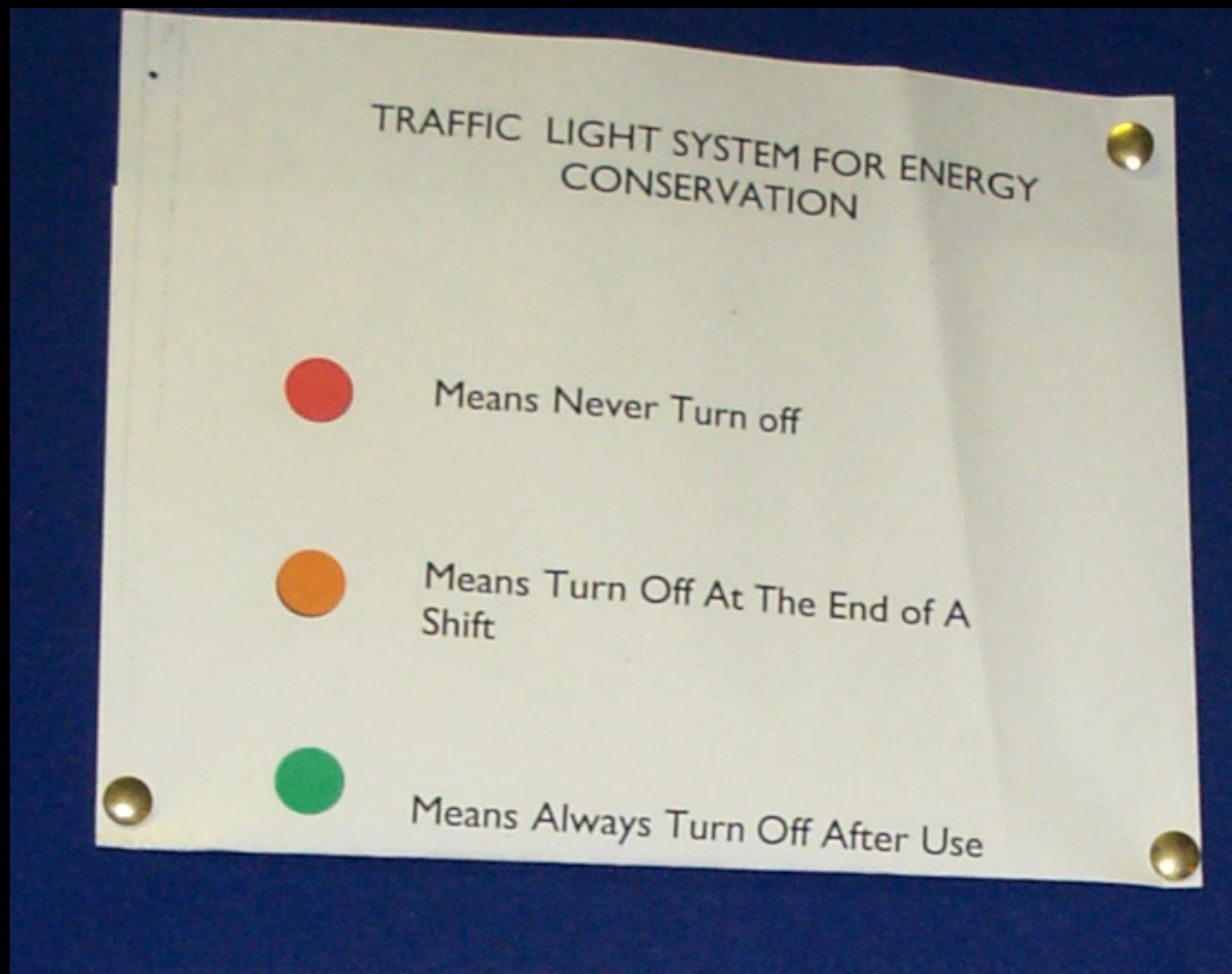
RIBA Part 1 Year 3 Lecture
LSBU 2016/17

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<https://greenbuildingencyclopaedia.uk>

Lighting Automatic Controls

- Control lights so not on if not required
- Zone lights so those closest to windows are off in day and on after dark
- Room, space or place ownership suggests type of controls
- PIR detectors turn lights on if people present
- External lights should be off by default and on only when people present
- External lights not 24 hours
- Controls with attitude

Railway Offices Manual Controls



Luminaries

Light bulbs



- 10-20% of electricity bill is lighting
- Traditional light bulbs: 75% of energy as heat
- Switch to energy saving alternatives
- energy-saving bulbs cost more to buy
- last 15 times longer than traditional bulb
- saving around £70 over longer life

Light bulbs off

- If UK households replaced 1 100 W bulb with an energy-saving alternative
- equivalent to Sizewell B nuclear power station turned off
- government agonises over future power supply
- Fails to address energy efficiency

Light bulb products

- energy-saving bulbs have dramatically improved
- many quality options are available
- offer bright light
- wide range of colours
- fittings to suit passion for stylish lighting
- www.lightbulbs-direct.com
- huge selection
- handy energy saving calculator
- money saved by switching to low watt alternatives

FM Cleaning contracts

- Staff are sometimes trained to turn lights off if last out of building
- Cleaners turn them back on
- But are they required to turn them off?
- Lights left on all night?
- Check the FM specification

15 times life
expectancy
of tungsten bulb

5 times more
energy efficient
A rating

Don't use on
dimmer switches

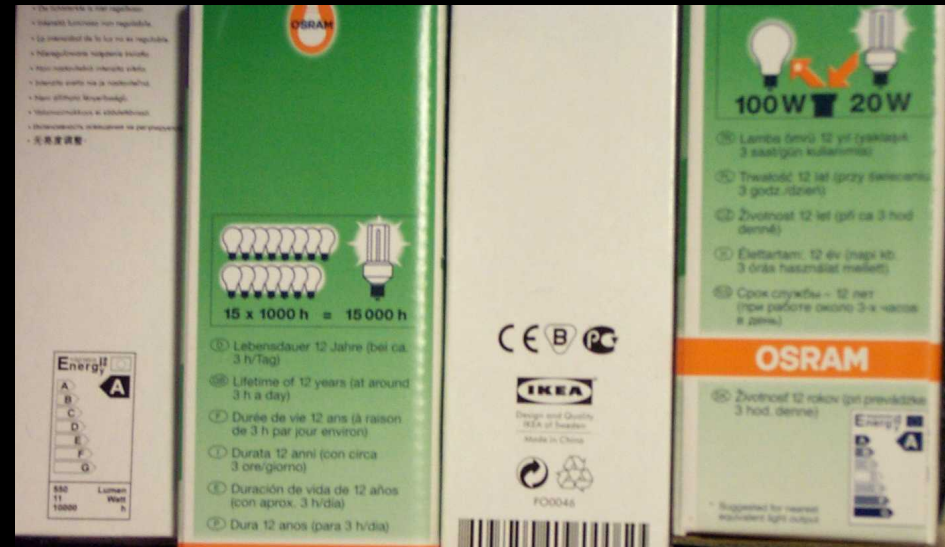
But some specials are compatible now
Can't buy the old type now
But are you still using them?



15 times life expectancy of tungsten bulb

5 times more energy efficient
A rating

Specials for use on dimmer switches



LED Light Emitting Diode

- LED save energy
- 1 watt instead of 100 watt
- So we use 100 LEDs instead of 1 No. 100 watt bulb
- Did we save any energy?

LED are not equivalent

- LED is a stopgap solution in many cases
- LED is a spotlight
- The lamps they replace were not all spotlights
- Spotlights do not deliver diffused light
- Replacement Fluorescent LED lights fail to deliver diffused light
- Spotlights on the kitchen floor do not deliver light to worktops
- So add 5 more light fittings to do that

LED avoid heat build up

- **Manufacturer have concentrated on:**
 - making 1-10 watt retro-fit LEDs
 - to replace 75 watt tungsten halogen reflector lamps
 - a purely commercial exercise, given the millions upon millions of downlights and spotlights out there
 - Removes a problematic heat source in summer
 - Removes a beneficial heat in winter
 - Peterborough Coop used tungsten lighting as heating but overheats in summer

Zhaga Compliance

- www.zhagastandard.org
- Zhaga: new standard for LED light engines,
 - interchangeable between luminaires
 - like a conventional lamp within a standard lampholder
- Embedding LEDs into fixtures is fundamentally non-sustainable
 - chuck the whole thing away if the LED fails
 - or making retro-fit LEDs to replace tungsten halogen reflector lamps
 - a purely commercial exercise, given the millions upon millions of downlights and spotlights out there

When you level the room

- If you are the last out
- Turn off the projector
- Turn off the conference call/Laptop display/Server access?
- Switch off the lights
- Turn off the monitors, especially weekends and christmas (prize giving?)
- Turn off the empty SSO with indicator lights on
- Cleaners need to be joined in too by contract



Energy: Lighting

- Don't leave lights and other equipment on if not needed
- Agile working may help here
- Partners out looking for work
- No need for lights on all day
- Stage set rooms near reception



Energy: Lighting adds heat

- Experiment with turning lights off in summer to see if over-heating can be avoided
- Turn off when you leave
- Require the cleaners to turn off the lights as they leave the floor
- Especially if you have exposed brick or concrete soffits

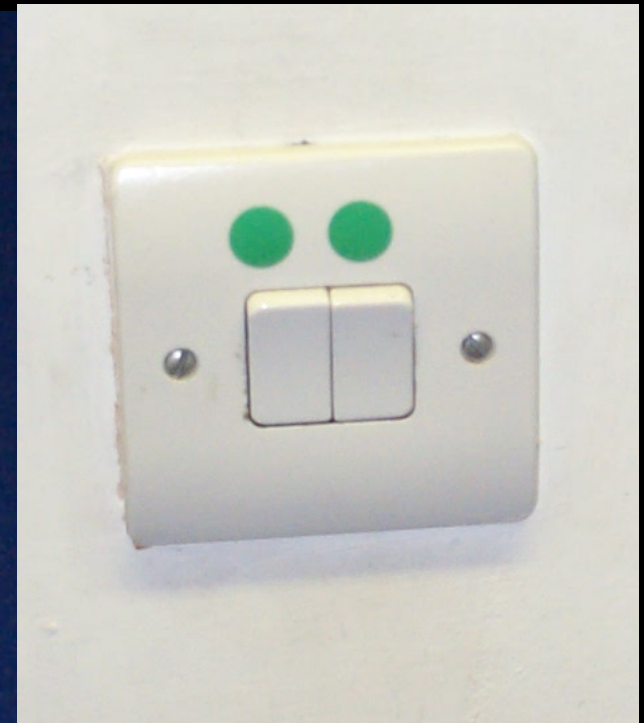
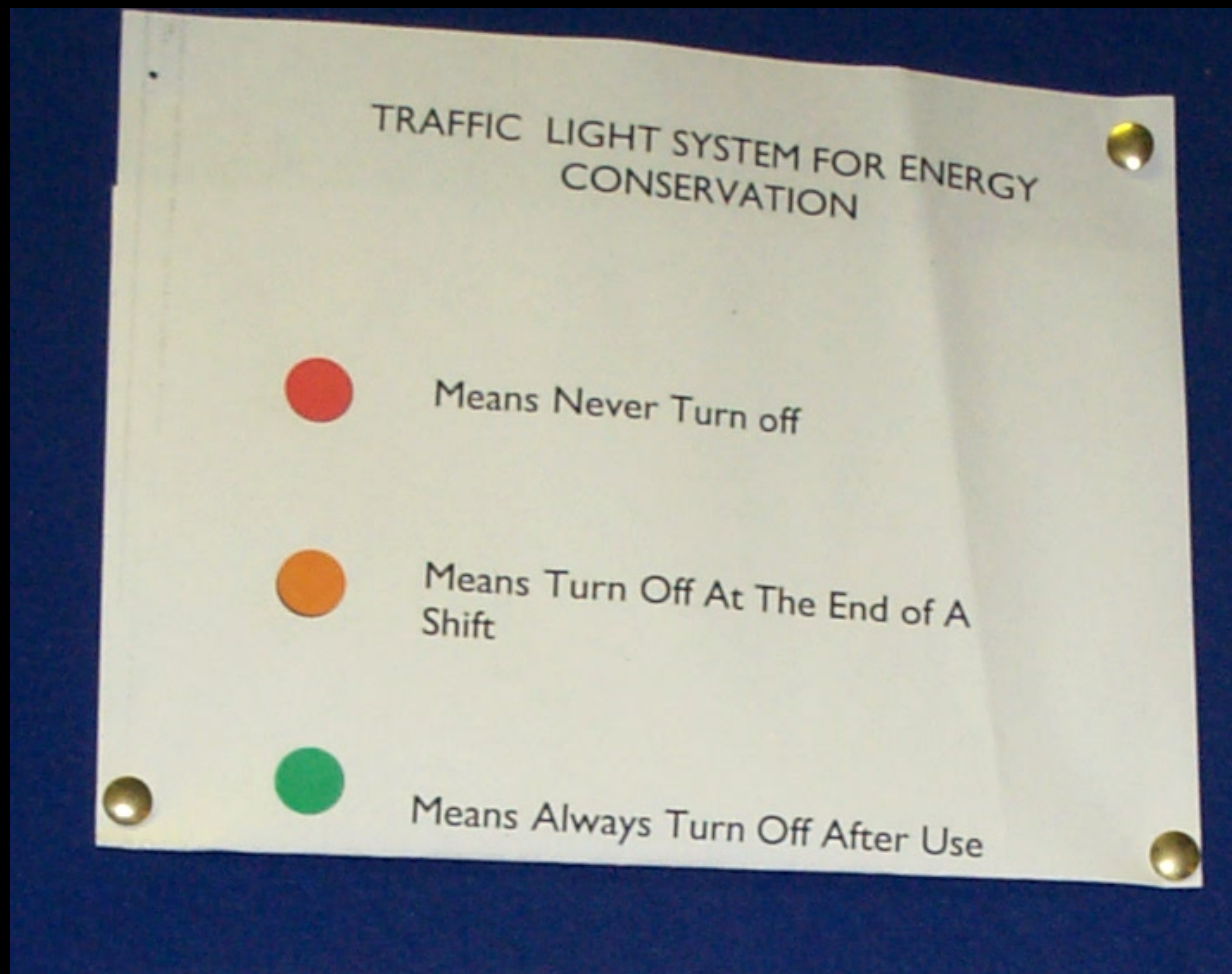


FM Cleaning contracts

- Staff are sometimes trained to turn lights off if last out of building
- Cleaners turn them back on
- But are they required to turn them off?
- Lights left on all night?
- Check the FM specification

Railway Offices

Help people to do the right thing



UEA Enterprise Building

Passive vents and windows



© GBE NGS 2003-21 Greening up Your Office

PLEASE KEEP
WINDOWS SHUT

PLEASE LEAVE
WINDOWS OPEN



If neither light is
illuminated, windows
can be opened and
closed as desired



When green light is on,
optimum comfort and
energy performance will
be achieved if the
windows are kept shut

When blue light is on,
optimum comfort will be
achieved by leaving the
windows open over night
to enhance cooling

Light bulbs



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- fittings to suit passion for stylish lighting
- www.lightbulbs-direct.com
- huge selection
- ~~handy energy saving calculator~~
- money saved by switching to low watt alternatives
- Strangely they sell illegal incandescent light bulbs

External Lighting

- Light from building windows and glazed facades
- Escape stair lighting
- Path lighting
- Façade uplighting
- Signage lighting
- Porch lighting
- Bike rack and car park lighting
- Area Flood lighting

Lighting



- UK lighting consumes 20% of electricity demand
- More in many other countries
- 40% in Thailand



Light Pollution



Light Pollution

- Clean Neighbourhoods and Environment Act
- Can be used to control light pollution
- To protect wild life and neighbours
- Avoid interrupting wild life sleep patterns
- Avoid glare and orange skies for astronomers
- <https://www.darksky.org/>
- International Dark-Sky Association



When is the last time you saw
a starry sky?

[FIND A DARK SKY PLACE](#)

The International Dark-Sky Association works to protect the
night skies for present and future generations.

International Dark-Sky Association (IDA) - Microsoft Internet Explorer

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dark skies initiative

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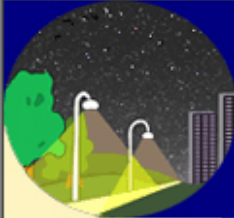
Look for Map

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dark

Settings



INTERNATIONAL DARK-SKY ASSOCIATION (IDA)

Our mission is to preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting.

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JOIN IDA / DONATE NOW


International Dark-Sky Association: The Light Pollution Authority

Light pollution

Any adverse effect of artificial light including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste.

Updates and announcements

Newsletter #66: Sustainability, Urban Planning, and What They Mean to Dark Skies



Read Issue #66 of the Newsletter of the International Dark-Sky

Beta testers wanted

Interested in testing our upcoming site redesign? Then please sign up to become a [beta tester!](#)

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Google dark skies initiative Go 74 blocked Check Look for Map AutoFill Send to dark Settings

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▪ ["Stars up, lights down! We support IDA." license plate frame](#)

For every license plate frame sold, Sky Publishing (an IDA charter member) will donate \$3 to IDA.

Directories

▪ **Lighting fixtures**

▪ [IDA-Approved™ Dark Sky Friendly products](#)

▪ [Manufacturers with IDA-Approved™ Dark Sky Friendly products](#)

▪ [Good lighting products](#) (not yet approved under the IDA Fixture Seal of Approval program)

▪ [Manufacturers with good lighting products](#) (not yet approved under the IDA Fixture Seal of Approval program)

▪ **Lighting laws**

▪ [U.S. municipality outdoor lighting regulations](#)

▪ [U.S. state outdoor lighting regulations](#)

▪ [International outdoor lighting regulations](#)

▪ **Lighting industry**

▪ [Lighting design & engineering](#)

▪ [General lighting](#)

▪ **Dark sky advocates**

▪ [Dark Sky Parks & Preserves](#)

▪ [IDA sections](#)

▪ [IDA affiliates](#)

▪ [Other light pollution organizations](#)

Images & multimedia

▪ **Images**

External Lighting Design

- Avoid Lighting Pollution
- Control direction
- Control light spread
- Avoid globes and uplighters
- Avoid glare
- Avoid lighting of the night sky
- Avoid unnecessarily bright lights

External Lighting Controls

- Turn off by default
- Turn lights on only if dark and people present
- Control temptation to add lights that are not required
- Add time delay switch for manual use
- Add PIR to turn on if people present
- Avoid lights on in the day under all circumstances

Green Light

- EST
- Mayor of London
- British Gas Business
- Give your lights time off
- Make it your business use less light
- www.greenlight-uk.org

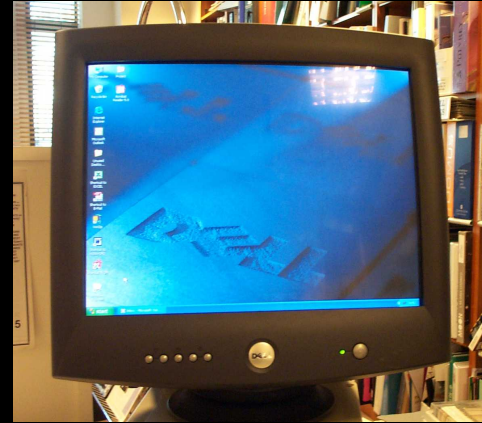
Electrical Energy Efficiency

ICT

IT energy Efficiency

- Turn them all off when not in use
- Excuses:
 - Overnight back up or rendering
 - Fast start next day
- Servers never off for remote access
- Energy demand when not in use
 - 90% consumption in sleep mode
 - Always ready for quick start
- Red and green lights give them away

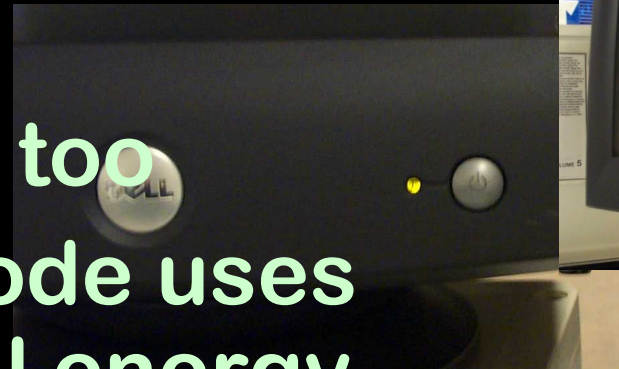
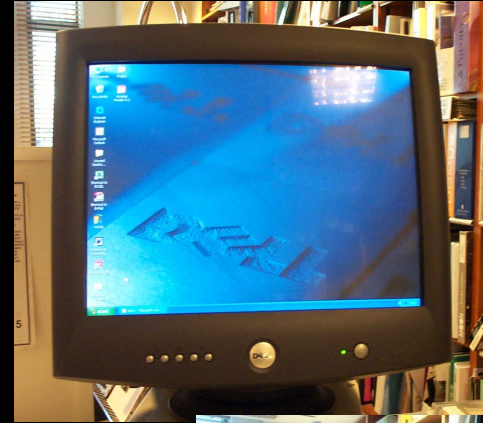
IT



- Don't leave computers, copiers, printers or monitors on overnight
- unless scheduled backups or updates are due to occur
 - Computer only on the night in question,
- or overnight processing is to occur
 - e.g. rendering or 3D printing
- Ownership is an issue
- Last wo/man out take responsibility

IT

- Don't leave computers, monitors on overnight
- Don't turn monitors off leaving the computers running, turn both off
- Turn Monitors off too
- Energy saving mode uses 90% of the normal energy demand when on



Clues things are on

- Light on Keyboards
- Light on Monitor



Clues things are still on

- Infra-red mouse
 - Or red light mouse
- Wireless routers
- Leave them visible as a reminder, hide the wires
- Switch them off
- Extension leads in switching hierarchy



IT

- Consider if Servers need to be left on 24 hours a day
- In summer turning computers off when not used helps to avoid over-heating
- Turn off at Christmas break?



Agile Working IT

- Uncluttered floor without Pedestal units
- Good wire management
- Hidden but accessible cable trays
- 4 gang switched socket outlet extension leads with spare capacity for laptops
- 2 in use and default all 4 switched on just in case
- Electromagnetic radiation on 24/7/356
- Power demand from all computers even when turned off
- 2 redundant SSO lights and computers need another power station running 24/7/356
- Agile working gives me a chance to turn off redundant SSO one work station at a time one day at a time
- Some cannot be turned off

Office Waste

Stationery, Kitchens and
Washrooms

UN SDG 9 Industry, Innovation & Infrastructure



UN SDG 11 Sustainable Cities & Communities



UN SDG 12

Responsible Consumption



Waste from buildings in Use

Waste output from
Domestic, Commercial & Other Building
occupation

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

Waste

- Paper towels
- Plastic cups
- Kitchen waste
- Printing and Plotting over order waste
- Batteries: Toxic in landfill
- WEEE Regulations and electrical waste
- WEEE Computers when upgrading

Mixed Waste

- **Mixed waste in South London**
 - Incinerated because its easy
 - City Engineer's can do that
 - One Technology One action and repeat
- **'Build it and waste will come'**
- **Incineration temperatures fluctuate**
 - Chemicals will try to escape
 - Plastics are toxic, PVC > dioxins (extremely toxic)
 - Crane drivers mix to avoid peak concentrations (same total)
- **Flue filtration is expensive**
 - £1m filters
 - Do not get replaced as frequently as they should, if at all
 - Dioxins escape.....

Segregation is for everybody everywhere

- Everybody does it at home (mostly?)
 - Or they won't empty your bins
- Some leave their brain and morals at home
- Segregation Notices are confusing
 - WRAP solved that for you Graphic Labels
- They do not pay me to segregate my waste
- Could not be seen rinsing food packaging,
 - oh the shame of it all
 - I can't be asked/bothered
- No WEEE bin so I put it in general recycling



www.greenspec.co.uk

Waste Recycle Iconography

Domestic Waste & DWRC



Another one of GBE's 1000 CPD/Lecture files to download
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Material streams

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Guidance download



textiles
Pantone 130 C
Process 0 30 100 0
Web #FDB812
RAL 1003
Vinyl 50-28 Apricot



plastics
Pantone Warm Red C
Process 0 90 100 0
Web #EE3F22
RAL 040 50 70
Vinyl 70-41 Warm Red



paper
Pantone 300 C
Process 100 30 0 0
Web #0089D1
RAL 5015
Vinyl 50-84 Azure Blue



glass
Pantone 3272 C
Process 100 0 45 0
Web #00A9A4
RAL 190 60 45
Vinyl 70-795 Dark Aqua



clear glass
bottles & jars
Pantone 3272 C
Process 100 0 45 0
Web #00A9A4
RAL 190 60 45
Vinyl 70-795 Dark Aqua



brown glass
bottles & jars
Pantone 4645 C
Process 30 50 60 0
Web #B7886E
RAL 060 60 20
Vinyl 100-39 Tan



green glass
bottles & jars
Pantone 338 C
Process 60 0 35 0
Web #5BC4B6
RAL 180 80 25
Vinyl 50-792 Aqua



blue glass
bottles & jars
Pantone 292 C
Process 50 10 0 0
Web #74BEEB
RAL 250 70 25
Vinyl 70-81 Soft Blue



garden
waste
Pantone 354 C
Process 80 0 80 0
Web #18B26A
RAL 150 60 60
Vinyl 50-745 Bright Green



building
materials
Pantone 4635 C
Process 20 60 80 30
Web #985D35
RAL 060 40 30
Vinyl 50-917 Dark Sahara



metals
Pantone 431 C
Process 20 0 0 70
Web #54656F
RAL 7031
Vinyl 50-96 Grey



automotive
waste
Pantone Black C
Process 30 30 30 100
Web #000000
RAL 9005
Vinyl 50-12 Black



electrical
Pantone Magenta C
Process 0 100 0 0
Web #ED008C
RAL 4010
Vinyl 50-64 Pink



paint
Pantone 266 C
Process 75 75 0 0
Web #5B56A6
RAL 300 40 45
Vinyl 50-66 Purple



other
recyclables
Pantone 021 C
Process 0 53 100 0
Web #F78F1E
RAL 2008
Vinyl 50-32 Orange



hazardous
materials
Pantone process yellow C
Process 0 0 100 0
Web #FEF200
RAL 1026
Vinyl 50-24 Lemon Yellow
Note: for icon and text
use Black



household
waste
Pantone Black C
Process 30 30 30 100
Web #000000
RAL 9005
Vinyl 50-12 Black

Segregation for next stage

- **Recover: Nutrient value**
 - Biodegradable Compostable
 - Food waste (minus packaging)
 - Paper waste (food contaminated)
- **Recyclable (not lost, employment)**
 - Food & Drink packaging (rinsed first)
 - Paper & Cardboard (clean)
 - Plastics: (rinsed if food contaminated)

Recycling Missed Opportunity

- In a world of growing population
 - And diminishing resources
- One planet living is essential
 - UK lives a 3 planet lifestyle
 - 1976 (1986?) was a one planet lifestyle
- Need to segregate and recycle all our waste
 - Especially the one-use throw-away stuff
 - Drinking cups, straws, food packaging, shopping bags
coffee pods
- Turn it into new stuff
 - Employ people in segregation and recycling
- Do not burn it and make ash and toxins

Waste

- Paper towels
- Kitchen waste
- Printing and Plotting waste
- WEEE Regulations and electrical waste
- Batteries
- Computers when upgrading

Paper Towels

- Hand towels and toilet paper
- Use FSC (Forest Stewardship Council) accredited paper
- Use recycled paper sponsoring WWF etc.
- Use recycled paper



Recycled/Recyclable Paper towels

- Recycled content is good
- Recycled content which is recyclable is better
- All paper is recyclable but its about who is doing it.
- Its also about segregation (or keeping it segregated and not adding to a single bin of mixed waste)
- And its about finding a service that is taking back its own paper.

Take back for recycling?

- paper towel manufacturers
- who if any are taking back and recycling?
- My suspicion is there wont be any.
- White paper recyclers may have contacts with non white paper recycling.

London Office Paper Recycling

- https://www.bioregional.com/news%20page/news_stories/laundry/laundry_251104.htm
- <https://www.ethicalmedia.com/stories/laundrypressrelease/>
- <https://www.london-recycling.co.uk/about/initiatives/laundry.php>
- <https://www.wasteonline.org.uk/resources/information sheets/officerecyclinginlondon.htm>
- https://www.londonremade.com/download_files/Recycling%20services.pdf

Manchester Office Paper Recycling

- <https://www.emergemanchester.co.uk/commercial.htm>
- <https://bury.ufindus.com/Recycling>
- <https://www.gmwaste.co.uk/kerbside.asp>
- <https://www.recycledir.com/Recycle2/>
- <https://www.paper.org.uk/recoveredsector/members/region.asp?region=North%20West>

Compostable?

- The Green/Blue paper towels may be compostable
- Do planted internal planter suppliers offer composting opportunities?

Reusable Cloth is even better

- Cloth towel dispenser and washing service
- Resource efficiency: paper cloth electricity
- but an environmental profile may be called for
- landfill is no longer an acceptable option
- Incineration certainly is not
- Cycle collect and return service announced yesterday on LinkedIn

Waste Segregation

- Segregate waste at point of generation:
- Multiple bins or multiple compartment
- Segregate:
 - Food waste and polluted packaging
 - Clean packaging to add to recyclables
 - reusable and recyclables
 - Coffee Aluminium capsules
 - London collections
 - compostable if you have a garden
 - Coffee grounds for fuel
 - London collections
- General waste gets burned in Southwark
- What happens in Islington?
 - Where you are?



Segregation: Recycleables

- **Plastics:** plastic bottles, yoghurt tubs
- **Cans:** food and drink (remove labels)
- **Cardboard:** Boxes
- **Paper:**
- **Glass:** Bottles and Jars



Segregation: Compostables

- Vegetable and Fruit, skin and core
- Teabags, Eggshell, nut husks
- Flowers and Plants
- Not Plate scrapings
- Not animal produce or meat or fish
- Compost: in composters or wormaries,
- To feed planters and roof gardens

Segregation: Not Compostable

- Plate scrapings
- Animal produce
- Poultry, meat or fish
- All suitable for Anaerobic Digestion
- Composites difficult to separate

Plotter Waste

- How often does a plot sit there all day and the owner not turn up to collect it
- Probably sent it to a plotter on the wrong floor then another on the right floor
- Default settings and printers help
- Take responsibility for yours
- Printer queues help



Waste

- Segregate recyclable paper
- Segregate waste at point of generation
- Provide dedicated bins labelled
- don't misuse them,
- Manage paper: don't misuse
- Reuse waste photocopy scraps for drafts and notes



Segregating Waste At Source



Two bins, one to segregate



A4 Scraps stored for reuse



WEEE & Hazardous Waste

IT



www.greenspec.co.uk

WEEE & RoHS

**Waste from Electrical & Electronic Equipment
& Restriction of Hazardous Substances**

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopaedia.uk>

WEEE Regulations

- Waste Electronic and Electrical Equipment
- Not permitted to Landfill 1st July 2007
- Toxic parts
- Requires recycling of valuable component and materials
- Reuse is often possible
- Charities set up recycling companies

Hazardous Waste: fluorescent



© GBE NGS 2003-21 Greening up Your Office

Battery Recycling

- <https://www.moreeco.co.uk/news/battery-recycling/>
- 30,000 tonnes of portable batteries enter the UK market each year.
- New EU rules have come into force that require some stores selling batteries to provide in-store recycling bins.
- Anyone selling more than 32 kg a year
 - equivalent to one pack of four AA batteries a day
 - must comply as part of targets on cutting landfill

Batteries

- Should be avoided if at all possible
- Use more energy to create than they provide
- Toxic in landfill
- Now being segregated
- Most often a small proportion of the charge is used and then discarded



Batteries

- Dead Camera batteries will still turn Walkman
- Dead Walkman batteries will still turn clocks for years
- Dead walkman batteries will run an old radio (not DAB radios) for months
- Dead batteries will light LED bike lamps
- DAB radios & batteries are an environmental disaster



Rechargeable Batteries

- If you have to use batteries
- Use rechargeable
- New types
- 15 minute charge possible
- Office bike
- Survey torches
- Site walky-talky

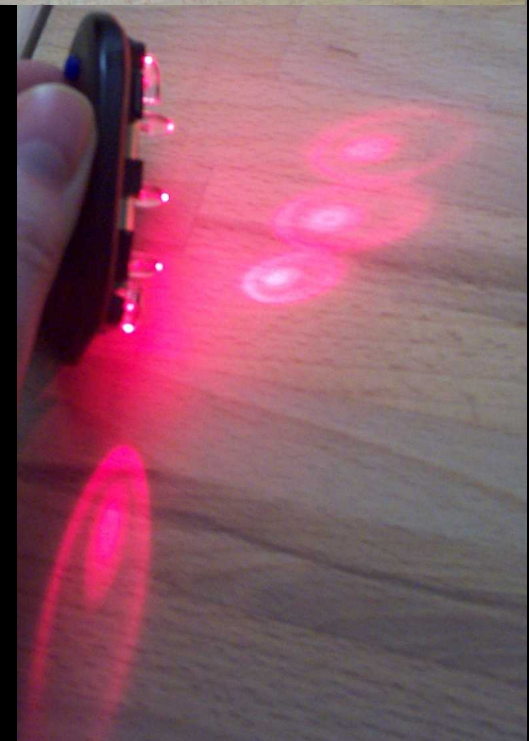


Alkaline Battery 'Rechargers' ‘

- Rather than wasting batteries or going to the expense of buying a rechargeable, you can now 'recharge' normal batteries.
- Each 'recharge' costs 1p per battery and they can be recharged to 95% of their original capacity for approx. 100 times.
- This could save a host of batteries and their associated toxins ending up in landfill.
- Cost will be £ 20.50 inc. VAT
- www.souvenir-cranwell.com/battery_regen.htm

LED lamps

- Red and green indicator lamps on computers
- Now full colour range available
- LED use very little energy
- LED bike lamp batteries last for a very long time
- Use LED in lighting display advertising & emergency signage
- Remember they are spotlights
- Don't blind other cyclist point at road



Hazardous Waste: Batteries

Let staff bring them from home



Batteries

- Use rechargeable batteries
- Use solar charged lights
- Use solar recharged batteries
- USB charged lamp



Refuse Room

- Segregate Waste, bag and label
- Use Recycled plastic 2 and 4 wheel bins with lockable lids, shaped holes
- Colour code, graphic, words and notice
 - Educational opportunity
- Store waste for LA kerbside collection
- Improve on LA waste strategy in readiness for improvement



www.greenspec.co.uk

Waste Recycle Iconography

Domestic Waste & DWRC



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Pantone process yellow C
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Web #FEF200
RAL 1026
Vinyl 50-24 Lemon Yellow
Note: for icon and text use Black



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RAL 9005
Vinyl 50-12 Black

Recycle Now

- https://www.wrap.org.uk/downloads/Recycle_guidelines_v4-2.25040d04.pdf

Westminster Website

- Waste Guide
- the definitive guide
- [https://www.westminster.gov.uk/
environment/rubbishwasteandrecycling/
rubbishandwaste/](https://www.westminster.gov.uk/environment/rubbishwasteandrecycling/rubbishandwaste/)

When you upgrade don't dump

- WEEE regulations apply to IT and White goods
- GreenWorks and GreenStandards and others will take your stuff, refurbish and resell or gift to charity, schools and hospitals
- School in a box
- NGS GBE website Specification Appendix
 - Furniture Fittings Equipment & IT: APP FFEI
 - Material Exchange Websites: APP MEW
- Freecycle: www.freecycle.org

Kitchens & Toilets

UN SDG 6

Clean Water & Sanitation



UN SDG 7

Affordable & Clean Energy

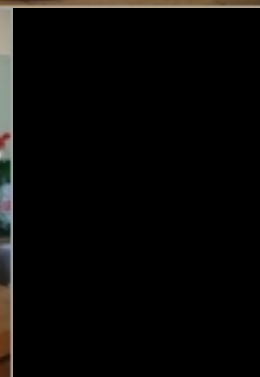


UN SDG 14 Life Below Water



Kitchen and Toilets

- Hot water drinks
- Cleaning Fluids
- Paper
- Drinking Water
- Food & Drink
- Utensils, Cutlery and Crockery
- Fairtrade
- Waste segregation
- Equipment



Eco Kettle

- Never boil the same water twice
 - Healthy water is cold or boiled once
- EcoKettle helps to boil just enough water once
- Any kettle and person can do that
- Also helps older generation who think kettle must be full and water must thunder before using
- Traditionalists think tea must use boiled

Hot water

- if sufficient staff numbers
- Use boiling water dispenser rather than kettle
- Kettle in preference to saucepan
 - Yes it happens
 - Especially with non-indigenous staff



Zip Taps

- Not dissimilar to umbilical multi-supply taps behind bar in wine bars and pubs
- These will dispense boiling water, cold water and filtered chilled water
- E sales@zipheaters.co.uk
- T 03456 005 005
- Zip Heaters UK Ltd.
- W <https://www.zipwater.co.uk>
- W <https://www.zipwater.com>

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for tea coffee and cooking

Filtered chilled water instantly
for healthy refreshing drinks

.....at work and in the home



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Zip can make your
washrooms
Level 5 compliant

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Kitchen Cleaning

UN SDG 6

Clean Water & Sanitation



Cleaning Fluids

- Use bio-based biodegradable cleaning fluids, at kitchen sink, basins and toilet





Ocean Plastic

FROM BEACH TO BOTTLE



Healthy Home

IS A HAPPY HOME

Clean & Caring

NEW LAUNDRY RANGE

*Look out for our Mumsnet rated
Non-Bio Laundry Detergent*



89% WOULD RECOMMEND TO A FRIEND

[Explore Products →](#)





WWW.ECOVER-PROFESSIONAL.COM



Ecover ...

- Plant and Mineral based
- Health and Wellbeing at heart
 - Long ingredient checklist
 - Skin irritation, eye irritation, aquatic toxicity
- Clean Green Factory
- 25% Recycled plastic and
- 75% bio plastic
- Refillable (in France EcoShops at least)
- No Animal testing
- Founder of B Corporation = Fair Trade
- Partner with WaterAid



- Domestic:
 - Ecover
 - <https://www.ecover.com/about-us/>
- Commercial:
 - GreenSpeed range
 - <https://www.ecover-professional.com/>

Ecover launches partnership with WaterAid

- Water is fundamental to Ecover. They respect the water used when making their products.
- Their products have minimum impact on the aquatic environment,
- The water cycle is global, so what we do here in the UK has a wider effect around the globe.
- 3 year partnership with WaterAid to enable communities in Ethiopia to access clean water
- To provide effective, sustainable solutions for the hygienic needs of people around the world, and it is this common interest that has led to the formation of the partnership.
- Hintalo Wajerat in the Tigray region of Ethiopia
- 22% of the population currently has access to safe water
- 6% have access to adequate sanitation.
- 17 out of every 100 children will die before they reach their 5th birthday.
- 14,750 people across eleven villages in the region will have access to safe water and effective sanitation.
- WaterAid
- <https://tr1.mp006.net/r5.aspx?GV1=ZOJH02J001YB0002EB0003EP700026XAE>

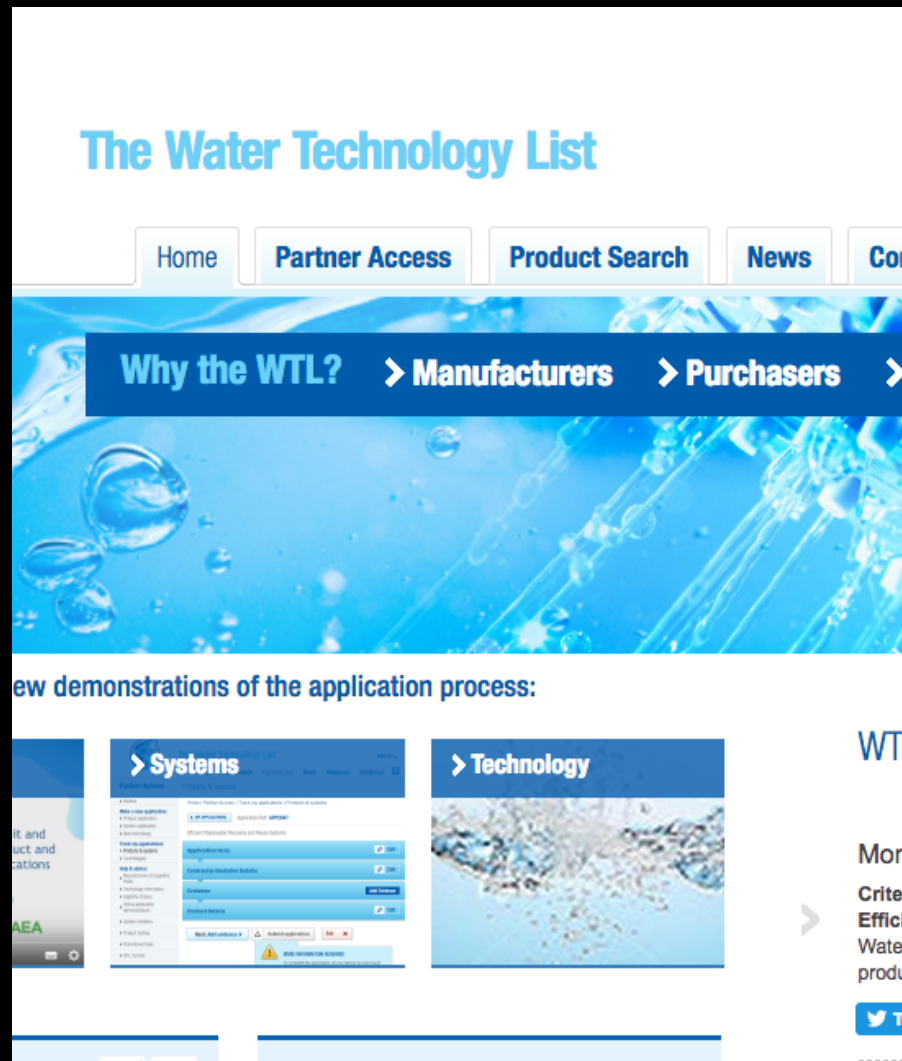
Water Consumption

UN SDG 6

Clean Water & Sanitation



Water Technology List



- Enhanced Capital Allowance withdrawn
- Reduced Tax for your customers
- Equipment chosen from the WTL Water Technology Lists
- Sanitaryware
- Taps, valves, Etc.

Drinking Water



www.greenspec.co.uk

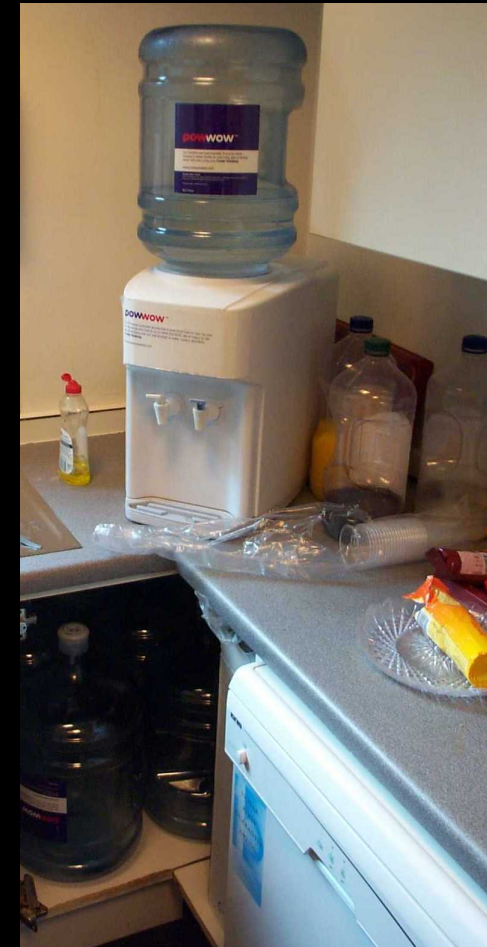
Sustainable Transport: Goods

CPD topic

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopedia.uk>

Drinking Water

- Bottled water is not sustainable
- Food miles
 - Transport Fuel
 - Transport emissions
 - Transport congestions
- Embodied water
- is not uncommon
- It is desired by staff



Corporate Greed

- Nestle are suing a city hall in USA
- for trying to ensure its own people get enough water
- to drink and for agriculture
- Nestle extracts millions of gallons
- Pays next to nothing for water supply
- Exports globally (Embodied water)
- Probably pays no tax

Drinking Water

- Chilled bottled water is desired by staff but is not sustainable
- Ambient filtered water is better and can be on tap
- Chilled filtered water is desired by staff and can be on tap



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- W <https://www.zipwater.com>

Bottled Water 'Could Be Toxic'

- Toxic threat: Bottled water may contain potentially toxic substances, research warns
- Potentially toxic substances found in plastic could be seeping into bottled water, new research shows.
- Scientists in Germany discovered heavy metal traces in 15 brands of bottled water from Canada and 48 from Europe
- They found "unambiguous" evidence of the potentially toxic heavy metal Antimony (known as Sb) leaching into water from their containers
- The researchers, led by Professor William Shotyk of the University of Heidelberg, also looked at Sb levels in three German brands of water available in both glass and plastic bottles

PET Polyethylene terephthalate

- They found that levels of Sb in the plastic bottles made from polyethylene terephthalate (PET) were up to 30 times higher
- Further research compared Sb levels in pristine groundwater from rural Canada with 12 brands of water from Canada sold in plastic bottles and three brands of deionised water from Canada, also sold in plastic bottles
- This study indicated that all the waters bottled in PET containers had been contaminated with Sb.
- Antimony is a metallic element used as an alloy in manufacturing

Glass Bottles too

- The research, published in the Journal of Environmental Monitoring, also found evidence of some leaching of Sb from glass bottles into water.
- Contamination from PET bottles is probably "far greater" than from glass
- But the extent of Sb leaching from glass containers is unknown because the research only looked at three glass bottles compared to 48 brands of water in PET bottles.

The report concludes:

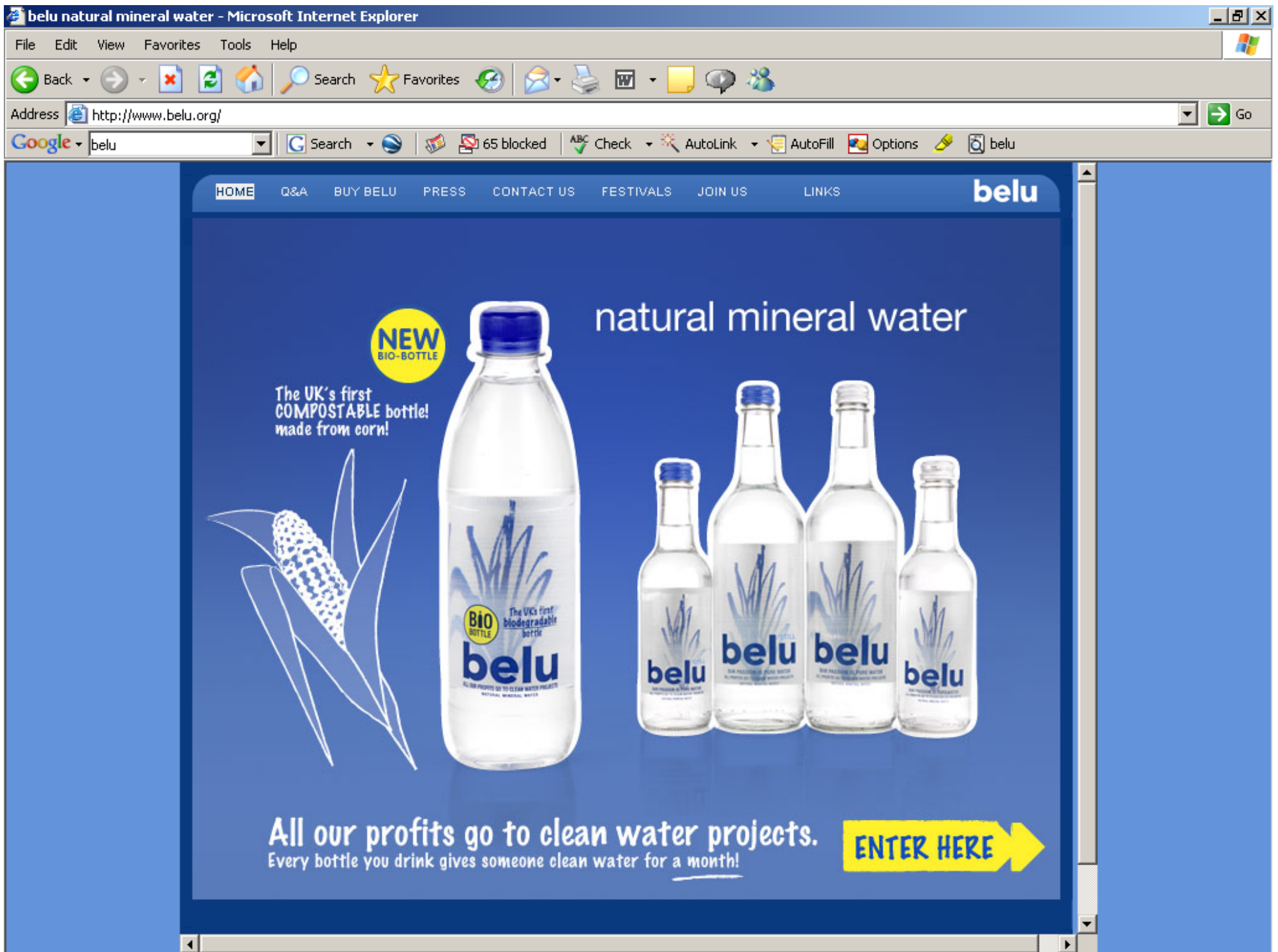
- "The data presented here leaves little doubt that bottled waters stored in PET are contaminated with Sb from their containers."
- It adds that all the water tested contained Sb levels which were well below the WHO's recommended guidelines for drinking water.

- "However, given that there appears to be a continual release of Sb from the containers to the fluids, and that the Sb concentrations in the waters mainly reflect the duration of storage, systematic studies of the extent and intensity of contamination are warranted," the report concludes.
- Recently developed methods of measuring Sb levels in polar snow and ice were used to test its presence in the bottled water.

Corn starch bioplastics

- Belu
- Commercially Biodegradable bottle (closed vessel)
- Social Sustainability:
- Profits go to clean water projects world wide via wateraid
- www.belu.org
- Seen in glass bottles recently





Cup & Utensil Cleaning

Utensils, Cutlery and Crockery

- Small offices:
 - use china/ceramic mugs and cups
 - clean them manually
- Medium offices:
 - clean them overnight with dishwasher,
 - using biodegradable cleaning fluids



Utensils, Cutlery and Crockery

- Intermediate offices:
 - use paper cups and segregate waste
- Big offices:
 - use plastic cups with special bins and a plastic cup recycling service



Plastic cup recycling

- There are nation-wide drinks dispenser plastic Beca collection services that comes with a special Beca bin
- They produce recycled plastic stationery items



Food & Drink

UN SDG 2 Zero Hunger





Fairtrade



Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopedia.uk>

Food

- Seasonal, Local, Fresh & Organic is best
- Not imported, frozen & chemical
- Support local farms & farmers markets
- Receive local food boxes
- Exotic fruit and vegetables are not sustainable (food miles)
- Imported foodstuffs are not sustainable (food miles)
- Sainsbury/Tesco is easy and cheap
- Co-op is good again
- *Fairtrade* (independent) is best of imported
- Sainsbury opted out, now “Fairly Traded”
- Choose *Fairtrade* not Fairly Traded
- Meat is a bad environmental choice

Tea, Coffee & Chocolate



- Home grown tea and coffee, hot chocolate is not available
- Fairtrade goods are more sustainable
- but still there are food miles
- Fair-trade coffee is good
- Shade-Grown Fair-trade coffee is best



Fairtrade Foundation

Fairtrade Fortnight
6-19 March 2006

- Fairtrade Fortnight
- “increase consumer awareness of the Fairtrade Mark and encourage people up and down the country to purchase Fairtrade products”.
- 2006 Theme ‘Make Fairtrade your habit’
- hundreds of new Fairtrade products available, including clothing made from Fairtrade certified cotton.
- huge range of products including bananas, chocolate, t-shirts and even footballs
- www.fairtrade.org.uk www.fairtradefestival.co.uk
- E mail@fairtrade.org.uk

Fairtrade

- 1000 products
- Coffee, Tea, Chocolate, Cocoa, Sugar, bananas, fresh and dried fruit, juices, honey, cakes and snacks, preserves, nuts, oils, herbs & spices, rice, beer, rum, wine, muesli

UN SDG 6

Clean Water & Sanitation



Sanitaryware & Sinks



Sanitaryware & Sinks

**N13 Sanitaryware: Water
Taps, Sewage Disposal**

Another one of GBE's 1000 CPD/Lecture files to download
<https://greenbuildingencyclopedia.uk>

Sanitaryware

- Water saving Taps and Appliances
- Sanitaryware Female Issues & Services (including female urinals)
- Office crèche
- Hand Cleaning soap
- Cleaning Appliances
- Hot water supply & Insulation
- Showers
- Hand drying
- Toilet paper
- Covid Considerations

SE England

- Water shortages,
- drought over recent years
- Recent rains solves one year's problems
- Flooding causes pollution does not solve shortages
- Code for Sustainable Homes addresses water
 - but its theory was flawed
 - But that has been dropped
- BREEAM helps
- BRAD G failed to deliver

All Appliances

- All appliances and fittings on isolation/flow regulating valves
- set low by default.
- All water using appliances to be A+ rated for water use.
- All new as set out below below,
- Existing to be modified towards these
- Fit water-escape protection
 - Shuts valve after a period of mains water flow
 - Washing machines, mains water coolers

Urinals

- In past:
 - Automatic flush
 - 24 hours a day
 - Fitted night time miser
- Now:
 - Fit proximity detectors to flush after you leave
 - Waterless Urinals
 - Still need waste pipes for urine!
 - Vent system to take smells away



UN SDG 5 Gender Equality

5 GENDER
EQUALITY



Female Urinal (in cubicles)

- Promoted as faster turn around time than WC
- Reduce need for toilet wipes and paper seat covers
- Less gymnastics at WC or Squat WC
- Back to urinal and tilt forwards pee backwards
- Some accuracy necessary or splash back
- But nobody specified them
- Disappeared from market? No.

Wasser

Klima

Wärme

Umwelt

Gebäude-
management

Referenzen

info  nt



L
a
d
y
P.

Kontakt

Impressum

Wir haben es für Sie: Lady P. von Sphinx.



Lady P.

Das erste Frauen-Urinal

Eine effektivere, komfortablere und vor allem hygienischere Lösung als herkömmliche WC's: wenn es das "kleine Geschäft" ist, sind Damen jetzt gleichberechtigt. Wir haben es für Sie: das erste Damenpissoir Lady P. Lesen Sie weiter:

- Die psychologischen Erfahrungen
- Die anatomische Lösung
- Die Gebrauchslösung
- Die räumliche Lösung
- Die ökonomische Lösung
- Die psychologische Lösung

Endlich!

Die Firma Bunse Haustechnik aus Leipzig installiert auch bei Ihnen das Sanitärmöbel von **Sphinx**! Natürlich ist Ihre Meinung gefragt - zur Idee an sich und vielleicht auch Ihre eigene Erfahrung betreffend, die Sie im

Paunsdorfcenter Leipzig mit Lady P. gesammelt haben? Über eine Kontaktaufnahme freuen wir uns - nutzen Sie bitte unser Kontaktformular!

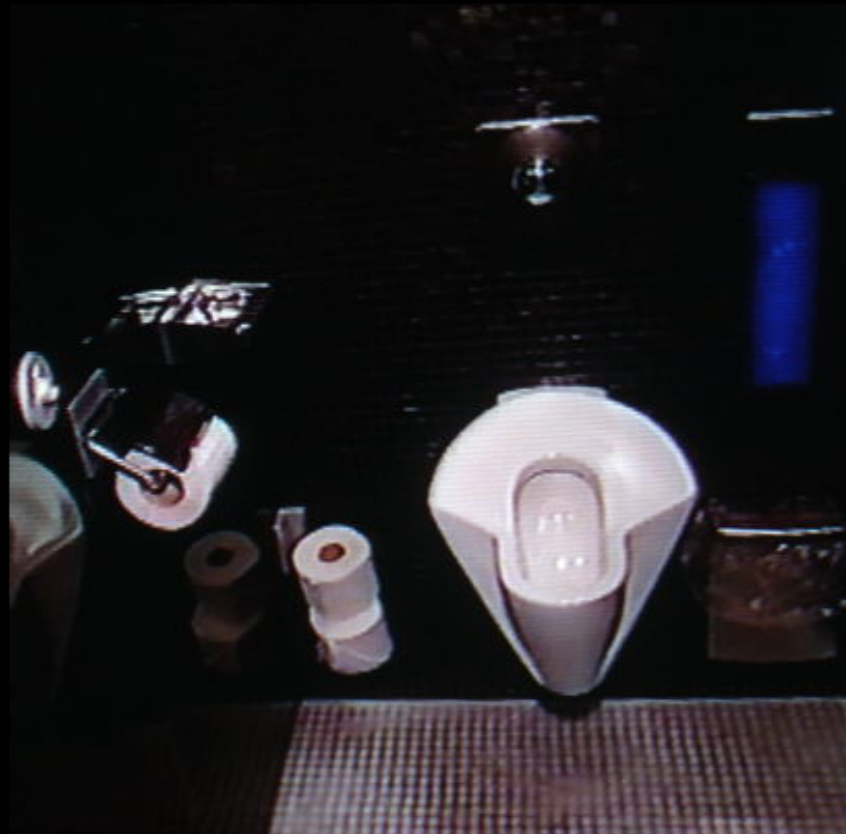
Wir veröffentlichen an dieser Stelle Ihre Wortmeldungen!



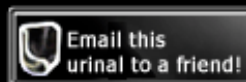
 **Sphinx**

The Female Urinal of Casinotheater

This female urinal may be found at the Casinotheater, which bills itself as a "comic theater". It is located in the town of Winterthur, Switzerland



This picture was sent in by diesel. He writes: "it is a rare female urinal, called "Lady P", produced in [the Netherlands]"



Female Solutions

- P-mate Hand-held (outdoor use)
- <https://www.pmate.co.uk/>
- The Whiz Hand-held (outdoor use)
- <https://www.whizaway.com/?OVRAW=female%20urinal&OVKEY=female%20urinal&OVMTTC=standard>
- Lady P Fixed Urinal (indoor use)
- <https://www.bunsehaustechnik.de/lady.htm>

Female Facilities



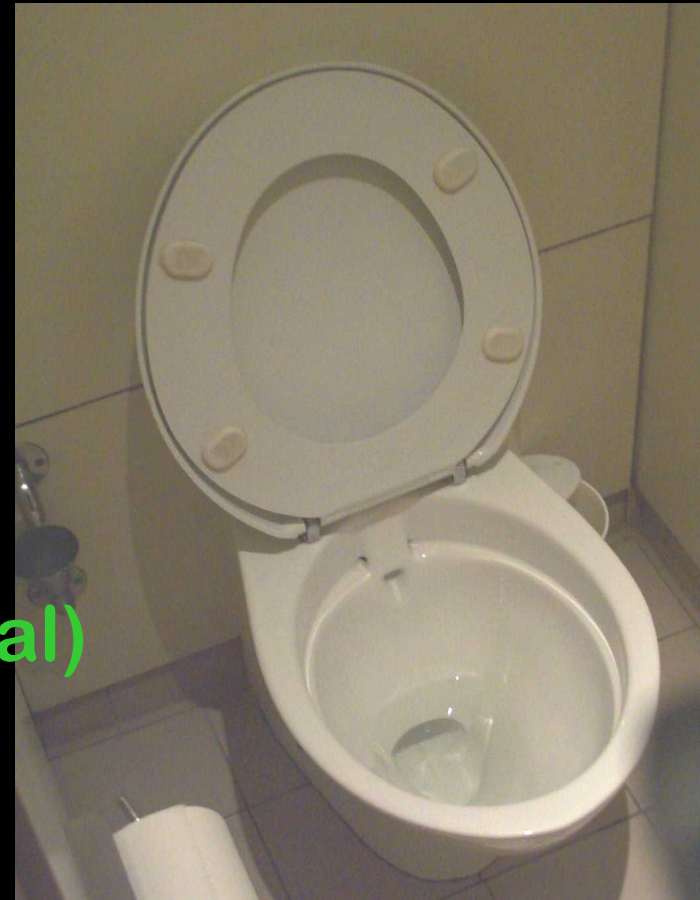
- Sanitary Towels, Tampons, Liners
- Avoid using the Sewers as a waste disposal route
 - block up the sewer filters or combined sewer overflows to rivers and dispose on the beaches
- Collection services with dedicated bins
- WEN Women's Environment Network
 - Offer no-waste alternatives
 - <https://www.wen.org.uk>
- <https://www.wen.org.uk/environmenstrual/>

Office Crèche

- Avoid silica gel absorbent in core
- Avoid landfill
- Avoid Pampers, etc.
- Use Natural cloth washable nappies
- Local authorities are developing wash services
- Inner lining to remove solids to WC
- Use compostable nappies
- <https://www.wen.org.uk>
- https://www.naturalchild.co.uk/ShopHome/index.html?target=dept_44.html
- <https://www.totsbots.com/reusable-nappies.htm>

WC Flush

- Was:
 - 9 litre flush
- Now:
 - $< \text{or} = 6$ litres
- Could be:
 - dual flush 6/4 litre
- Better: (should be normal)
 - 4/2.5 litre
- Best:
 - 1 litre vacuum flush
 - Recycled rainwater flush water not potable water



WC Ideal

- All appliances and fittings on isolation/flow regulating valves
- Dual and low flush cistern/toilet 4/2.5 litres flush.
- Low capacity cistern means quicker refill
 - Faster turn around
 - No more waiting for second flush to remove your deposit
 - Shorter queues?
 - Depends upon other activity time
 - Tissues on toilet seat?
 - With children?

Existing Buildings: WC

- Introduce isolating valve to pipework
- Retrofit low water demand flushes to existing WC cistern
- Retrofit water saving devices in existing cisterns
 - Save-a-flush
 - Hippo

Save Money, Water & Environment



- UK water use increased by 70% since 1970
- Toilets: 90% of water use for an office
- A device can be fitted to a siphon toilet (with handle on front),
- saving average UK household 500 litres/week
- If on a water meter, over £100/year
- Interflush from Varyflush
- www.interflush.co.uk.
- Flush or new toilet on WTL & ECA

WC Cleaning

- Use a brush in preference to chemicals
 - Or Coca Cola for calcium build ups
- Use natural cleaning liquids if you must
 - Ecover
- Non-stick coatings: ToTo @ 17CHS
- Use biological anti-bacteria coated
 - Lives on the bowl surface
 - not washed away
 - Eats skid marks for breakfast

Natural Cleaning

- On GBE website
- Natural ingredients
 - Lemon, Vinegar, Bicarbonate of Soda, etc.
- Recipes
 - Stains <> Recipes

Basins and Taps

- Fast wasteful taps aim into bowl
- Slow flowing tap drips onto surfaces
- Stop designing them so 25% of water ends up on work surface or floor
- Sanitaryware by manufacturers work
- Architect designed sanitaryware usually fails
- FMs hate them

Tap cleaning

- Dripping on surfaces,
- Soap residues require cleaning
- Cleaning requires chemicals or detergents
- Avoid touching with soapy hands
- Proximity taps avoid it all
- Covid Opportunities

Percussion taps

- Shut too fast to get to the water
- Or too slow turning off
- No control over the flow rate
- Jam on, Jam part way
- Chrome damaged by soap, rings and keys in hands
- Can be sprinkler
- Put on isolation/flow regulator and set low by default

Taps

- Slow flow to save water
- Proximity taps stop & start on their own
- Spray taps reduce water demand
- Aerators feel like lots of water
- Sinks and Baths want to be filled quickly
- avoid water cooling by aerators/sprinkler
- Two stage taps, slow flow and fast fill

Taps

- Hot and cold water taps on isolator/flow regulator valve
- 4 litres/minute maximum
- proximity actuated taps
- aerators or spray heads
- safe temperature blending
- not pressurized, not percussion taps
- Pumped on circulating pipe if remote storage
- Solar Thermal heating
- Anti-bacterial coatings
- Covid Opportunities

Existing Buildings: Taps

- Retrofit water aerators/sprinklers on existing taps
- Tap Magic
- <https://www.tapmagic.co.uk/>
- Save 70% water and energy in hot water
- Sprinkler and full flow or sprinkler only
- Or replace existing with proximity taps with low flow and aerators



- > Home
- > Water Saving Products
- > Orders
- > Contact Us
- > About Tapmagic
- > Water is Life
- > Press Releases
- > FAQ's
- > Links



Water saving tap inserts

Reduce waste, reduce cost.

Tapmagic is unique in offering dual flow: opening the tap a little gives a strong but water-saving spray for hand washing or cleaning teeth - opening the tap further bypasses the spray mode to fill the basin quickly; savings of over 50% independently proved.

***Which product
do I need?***



Cartridge Animation

Tapmagic Cartridge M24 & M22

New Improved Model

Dual flow unit; fits taps with threaded outlets.
Price per unit £4.79

More Info

Buy Now



Tapmagic Unifit

Fits taps with round outlets 15-19mm
Price per unit £4.79

More Info

Buy Now

Spraymagic Unifit

Price per 2 unit pack £4.29

More Info

Buy Now

Sinks

- Hot and cold water taps
- Need quick sink fill to avoid heat loss
- And sprinkler/aerator low flow to wash hands and some teeth brushing and face washing
- Isolation valve but regulator less important
- Elbow/level taps, easy on/off
- Sinks fitted with two stage taps: sprinkler and full flow
- Some wash dishes with running tap
- 6 litre/minute maximum

Sinks

- Hot and cold water taps
- Need quick sink fill to avoid heat loss
- And sprinkler/aerator low flow
 - for hands face washing & teeth brushing
- Isolation valve and balancing system
 - but regulating flow less important
- Elbow/level taps, easy on/off
- Sinks fitted with two stage taps:
 - sprinkler and full flow
- Some wash dishes with running tap
- Some café chains insist on running tap 24 hours
- 6 litre/minute maximum

Catering kitchen sinks:

- Catering sinks want fast flow to fill
- Avoid aerators on fast fill tap
- Hand washing should be in separate bowl with two stage tap with aerator/sprinkler
- All taps on isolation/flow regulator valve

Existing Buildings: Appliances and Sanitaryware

- Retrofit isolation/flow regulating valves on all taps and supply pipes
- Set low by default

Cyclist Showers

- 8 litre/minute maximum low flow shower
- Narrow spouts give pressure jet effect
- Good spread of water jets impression of lots of water
- good water head ideal
- not power shower
- Try to avoid retrofit power-shower
- Changing facility and lockers
- SHRU Shower Waste Heat Recovery Unit
 - Significant energy savings to be had
 - Hot waste pre-warms incoming cold water

Pipes & Insulation

- Fully insulate hot and cold pipes along whole length
- Inspect everywhere and confirm
- Avoid labour intensive wrapping, it wont happen
- Encase with split tube or Fill whole void
- If DHW is on a circulating pipe, then well insulated everywhere
- Avoid dead legs, avoid long dead legs
- Bathrooms over/near kitchens: compact plumbing
- Domestic: Many ensuite bathrooms usually means excess plumbing and energy wasted

Pipes & Insulation

- **Fully insulated hot and cold pipes along whole length**
 - Inspections and sign off
 - Inspect everywhere and confirm
- **Use Tubular insulation**
 - Avoid wrapping insulation, labour intensive, it wont happen
 - Fill whole void, its easier than wrapping pipes
- **If DHW is on a circulating pipe,**
 - then its vital to well insulated
- **Avoid long dead legs**
- **Make efficient floor plans to keep plumbing compact**
- **Once buildings are well insulated hot water becomes major demand**

Existing buildings

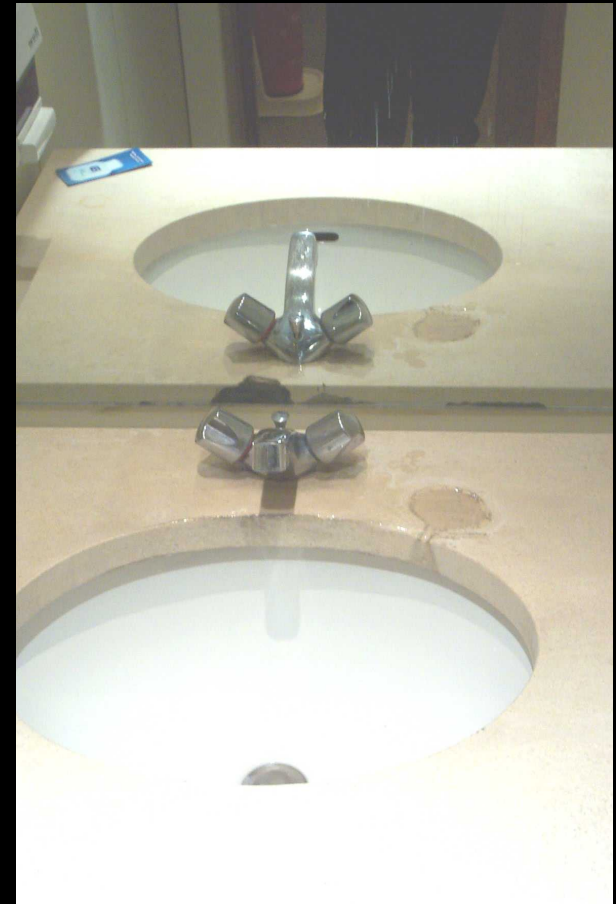
- Every plumber and electrician needs to carry insulation
- Every time they open up a void
- They should insulate the void before closing up
- Or the opening up has to happen twice in order to insulate the voids of a building

Services Repairs

- British Gas Engineer' s on repairs and maintenance contracts
- They are required to insulate pipes close to insulated replacement cylinders
 - But not beyond say 1 meter
- They think pipe insulation is a waste of time
 - They are very wrong
- Because BG engineers tell the public
 - trust BG Engineers
 - every other engineer is a cowboy
- So much TV marketing to fix their bad reputation

Basins & Soap Recess

- Soap Recess don't drain
- Especially if Architect designed
- Soap bar dissolves
- Wasteful of soap
- Check the reflection in the mirror



Hand cleaning soaps

- Bars of soap are messy
- drying shrinkage cracks harbour bacteria
- Use Biodegradable soaps
- Liquid soaps destroy rain forests for oil plantations
- avoid excess soap
 - 1 squirt is enough
- Use foaming dispenser avoid excess soap



Hand Drying

- Paper v
- fabric v
- hot air v
- air v
- Shake and backs of trousers

Hand Drying

- Fabric towels
- No waste
- Do need cleaning but carried out on a commercial scale
- Don't locate hot air blowers over radiators because they will rust away

Hand Drying Towel

- Cleaned by service
 - Carried out on a commercial scale
- Reused not wasted
- unlike paper towels
- Unless segregated or recycling



Hand drying paper towels

- Wasted
- Unless segregated for recycling

Hand Drying

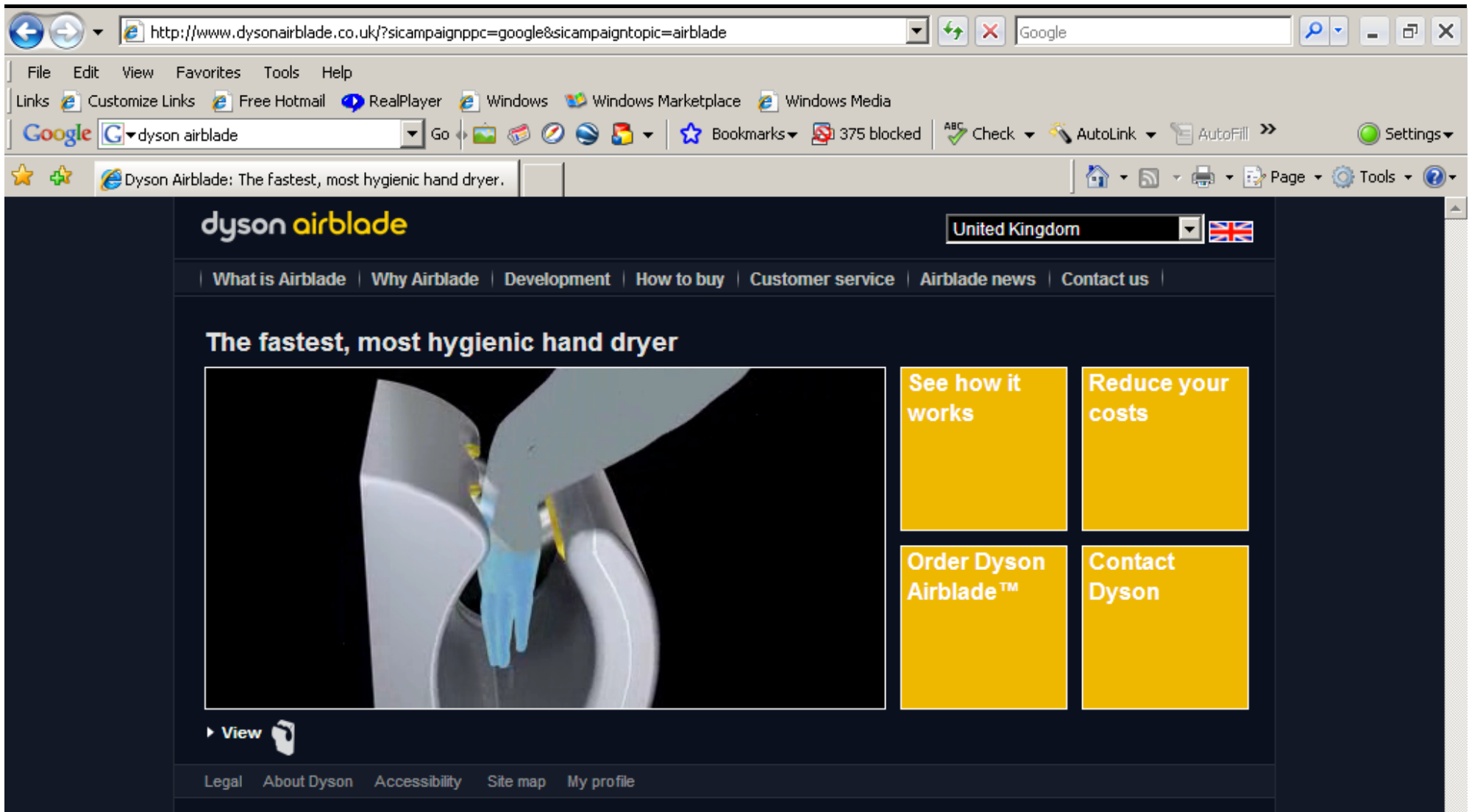
- Fabric towels use less energy than hot blown air which are not very effective
- Only use electric if no other method possible (2009)
- Do use electric (2020)
- Don't locate hot air blowers over radiators because they will rust away

Warm Air Hand dryers

- Electrically warmed air
- Inefficiently created and distributed but lower carbon grid electricity
- Inefficient hand dryers 500-2500 watts
- Long wait to get dry (10 seconds?)
- Impatience means hands not dried despite expended heat
- Avoid over radiators or they rust

Cold Air Hand dryers

- Wet hands in, proximity detection, withdraw hands slowly,
- 400 mile/hour blast of air removes water
- No heat added, just air and some residual heat from motor
- 10 seconds compared with 27 to 40+
- 1900 watts to blast air
- Mistaken for urinals



**Dyson airblade: Great marketing and Architects are seduced
very noisy, look for Quietmark
1900 Watts, 500 Watts available: See Mitsubishi**

Efficient cold air hand dryers

- No heat added, residual heat from motor
- Air driven through tight gap air feels warmer
- Concentrated vortex downward air flow
- Hot air rises and is drawn back in via concentric openings
- Heated air recycled and cleaned
- <600 watts

Peace and Quiet

- You can now choose equipment and systems to avoid adding to the din of open plan offices
- >80dB hand dryers are not uncommon



Cold Air Hand dryers

- Wet hands in, Proximity detection, withdraw hands,
- blast of air removes water
- 400 mile per hour wind
- No heat added, just air and some residual heat from motor
- 10 seconds compared with 27 to 40+
- Dyson Marketing is very Effective
- 1900 watts is not Effective (500 watts is)
- >80 dB is not Effective (disturbing adjacent)

Toilet Paper

UN SDG 12

Responsible Consumption



Toilet Paper

- 15 years ago
- “Everyday about 270,000 trees are effectively flushed down the toilet,” Andrew Lee, director of campaigns at WWF
- “This is occurring at a time when some of the world’s most important forests are under serious threat.
- Manufacturers must use more recycled fibres in their products.”

Campaigns work

- 20% companies made FSC toilet paper
- After a very brief WWF campaign 10 years ago
- Now most toilet paper manufacturers provide FSC certified paper
- Or have recycled content paper
- Or both
- Choose it if you don't already

Toilet Paper

- Very little recycled paper available
- 23% compared to 88% in commercial / business paper
- Only 21% FSC-certified sourced pulp
- Only one company taken measure to exclude illegal sourced timber

Toilet Paper

- Andrex ranked bottom of tissue manufacturers
- Kimberly-Clark emerges poorly from a WWF survey of the environmental performance of European tissue manufacturers.
- None of Europe's leading tissue companies are "offering enough recycled content" in their products, according to WWF.
- Kimberly-Clark was ranked bottom of the survey, which looked at timber sourcing policies and the use of recycled paper amongst a range of other environmental indicators.

Toilet Paper

- Procter and Gamble, Georgia Pacific, Metsä Tissue and SCA were the other companies surveyed.
- Kimberly-Clark's consumer products contain only 23% recycled paper, although its business products contain 88%.
- Only 21% of pulp used by the company in Europe comes from FSC-certified sources.

Toilet paper

- Kimberly-Clark reacted with “surprise” and “disappointment” to the survey.
- “We find it strange that WWF has put us at the bottom of the ranking when Dow Jones has just named us as a leader in the personal products sector of its sustainability index,”
- spokesman Joanna Lund.
- “That’s a much more authoritative survey.”
- Dow Jones, however, only invited the world’s 2006 largest companies to participate in its latest index.
- SCA, Metsä and Georgia Pacific – the top three companies in WWF’s survey - were too small to be included.
- SCA is the only company to have “taken effective measures to exclude illegal or controversial timber” from its products, according to WWF

Office Equipment & Expendables

Computers, Paper, Furniture,
Finishes

UN SDG 12

Responsible Consumption



Office Expendables

- Ink cartridges
- Printing paper
- Reducing paper use
 - Word processing and printing
- Recycled Stationery Suppliers
- Green Stationery

Ink Cartridges

- Recycling of ink cartridges
- Under public pressure manufacturers now offer recycling



Ink Cartridges

- Companies offer reuse by refilling
- Sell at lower costs
- Postage page empties return
- Recharge them
- Resell them



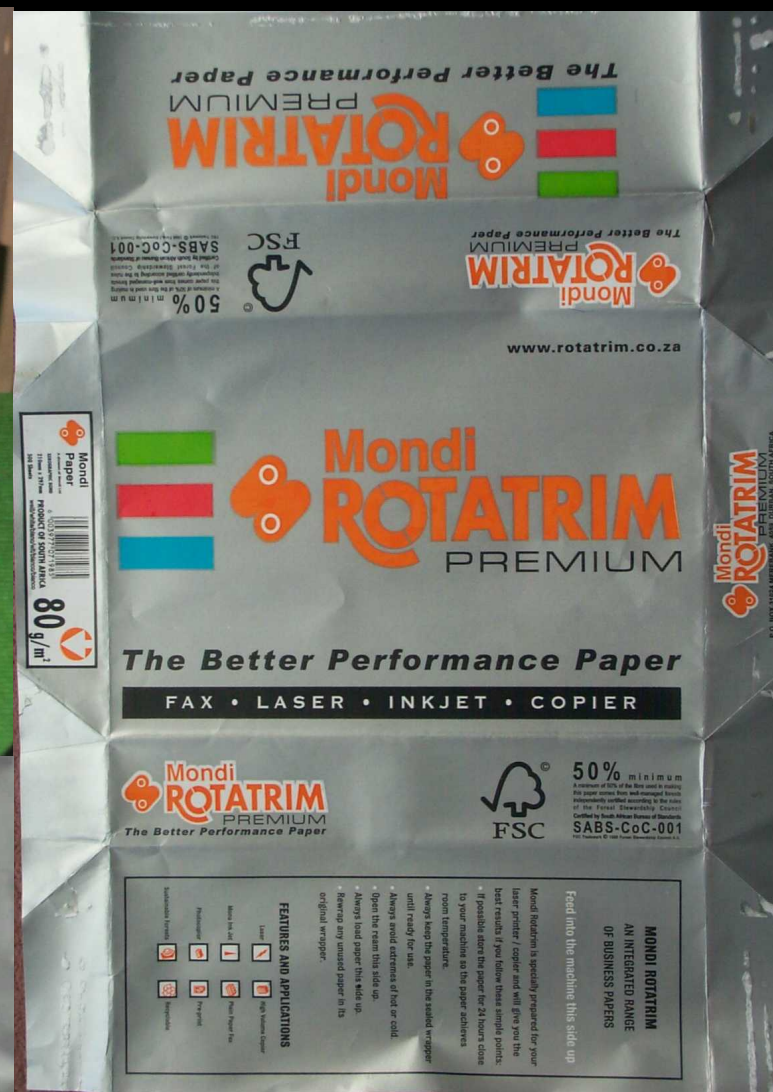
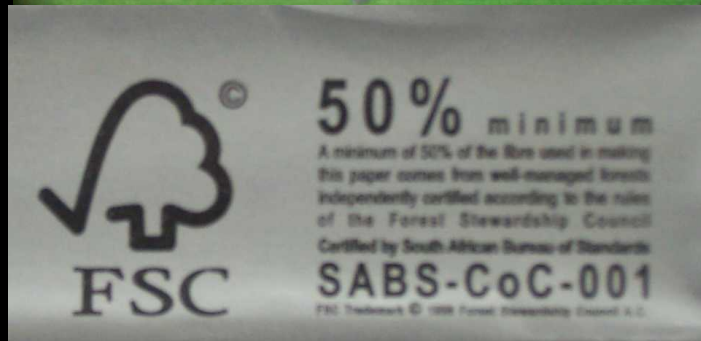
All paper use

- In 2006 the UK used about 12.4 million tonnes of paper
- of which only 32% was recycled
- UK Businesses use 2 million tonnes of paper each year

Paper

- Use FSC (Forest Stewardship Council) accredited paper
- Use recycled paper sponsoring WWF etc.
- Use recycled paper
- Post consumer recycled
- FSC now covers Recycled



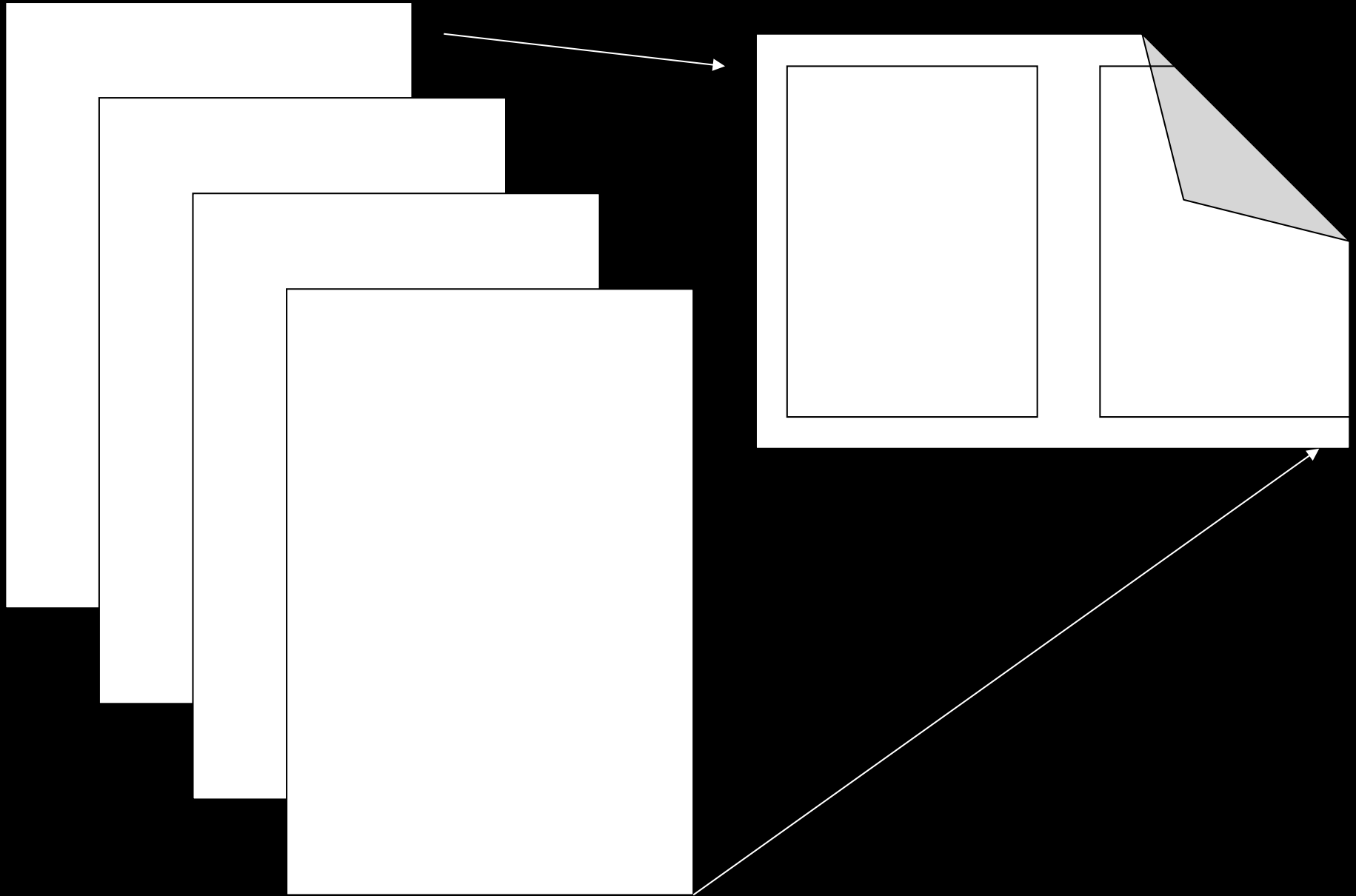


Word Processing

- Work hard at fitting the last paragraph onto page one
- Use Page Set up and Paragraph Settings to auto-fit in one page
- Adjust margins to use more of the page
- Specifications: too thick?
- Reduce margins, reduce font and print double sided

Photocopying and printing

- Set printers and copiers to default:
- double sided, 2 No. A4 reduced to A4 landscape
- i.e. 4 pages to a sheet
- Proof-read and spell-check on screen before printing,
- test print before multiple printing,

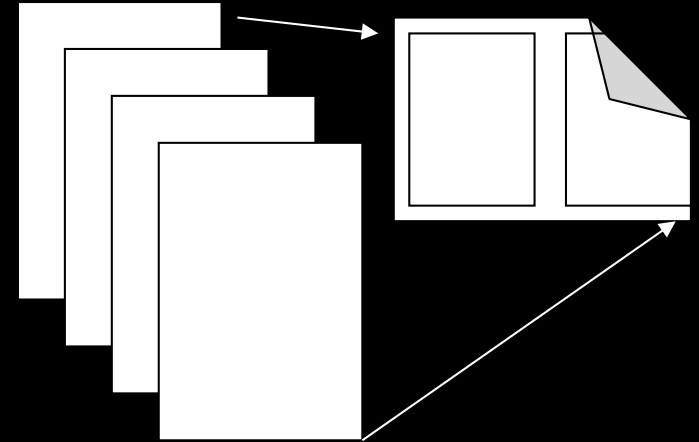


Saving Paper

- London-wide switch to duplex printing
- could save 17.5 billion sheets of A4 paper every year!
- That's enough paper to wrap around the earth four times!

Copiers

- Set default to print double sided
2 A4 side by side
shrunk to fit
A4 landscape
i.e. 4 pages per
A4 sheet
- Reuse waste
- Recycle waste



Green Office Supplies

- Government Approved suppliers and supplies list available
- “Quick wins”

Recycled Office Supplies

- <https://remarkable.co.uk>
- Remarkable (Pencils) Ltd. The Old Stables
Hansfield, GL19 4LG
- T 01452 780 795
- E edm@remarkable.co.uk
- Recycled tyres: Mousemats, pencil cases,
- Recycled plastics: Rulers, Pencils
- Recycled paper: Books, Pads, Paper
- Recycled rubber and paper avoiding plastics



Green Stationery

- <https://www.greenstat.co.uk/>
- Studio One, 114 Walcot Street, Bath,
UK, BA1 5BG
T 01225 480 556
- F 01225 481 211
- E sales@greenstat.co.uk

- www.firstimpressionslastlonger.com
- Victory House, 89B Gloucester Rd,
Croydon, CR0 2DN
- T 0208 665 4080
- F 0208 665 4092
- E adam@yhcholdings.com

- Carbon neutral environmentally responsibly printer cartridges and stationary
- offer very competitive prices and customer service, whilst cutting your carbon emissions and making your business as green as It can be.
- visit your business and show you how to reduce your wastage and save you money.

Performance

- 90% of our products are made in the UK
- Support local UK manufacturing
- 95% of the products we supply are recycled and we will help increase your recycling percentage
- Our deliveries will arrive to you via our green fleet
- in 100% recycled packaging
- Our products cost less and have a longer life span
- We won't bombard you with heavy brochures
- 12,000 customers
- saved 28 tones in waste

Sick Building Syndrome

Furniture Fittings IT Equipment

UN SDG 3

Good Health & Wellbeing





Sick Building Syndrome

Furniture Fittings IT Equipment

Another one of GBE's 1000 CPD/Lecture files to download

<https://greenbuildingencyclopedia.uk>

© GBE NGS 2006-21 Greening up Your Office

Sick Building Syndrome

- VOCs from plastics
- Carpets and sheet flooring
- Plants and Humidity
- Paints and lacquers
- Wall papers
- Furniture off gassing
- Binders in Library and Filing
- Ergonomics
- Monitors and printers and outlets
- Wireless computing
- Graphics department

Sick Building Syndrome:

- Avoid use of materials which are contributing factors:
- Off-gassing from flooring, carpets, furniture, wall and ceiling decoration
- IT problems PVC cabling
- Illegal to Smoke in office 1st July 2007
- Mech Ventilation with recycling of germs



SEDA Guides

<http://www.seda2.org>

<http://www.seda2.org/guides/index.htm>¹

Another one of GBE's 1000 CPD/Lecture files to download

<https://greenbuildingencyclopedia.uk>

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S E D A
Scottish Ecological
Design Association



SCOTTISH EXECUTIVE

Design and Detailing for Toxic Chemical Reduction in Buildings

[home](#) | [introduction](#) | [context](#) | [issues](#) | [benign construction](#) | [costs](#) | [details](#)

Welcome

Welcome to the website for the SEDA guide on Design and Detailing for Toxic Chemical Reduction in Buildings, the third web mounted design guide commissioned by [SEDA](#) - the Scottish Ecological Design Association - and funded by a [Sustainable Action Grant](#) from the Scottish Executive.

The guide is divided into six chapters; chapters one to five examine the context and principles of designing for Toxic Chemical Reduction. Chapter six shows five typical construction details together with alternatives which optimise the potential for each detail to exploit toxic chemical reduction techniques, along with explanations and costs. These five are available as separate [pdf downloads](#) in addition to a pdf download for the [entire document](#).

The research presented on this site was prepared by [Gaia Architects](#), [Gaia Research](#) and [John Gilbert Architects](#).

Also in [this series of guides](#):

Design Guide 1: [Design and Detailing for Deconstruction](#)

Design Guide 2: [Design and Detailing for Airtightness](#)



Pfennigacker A Healthy
School. Architect
Joachim Eble
Architects. Photo
Howard Liddell

Contents

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Health Buildings

Unhealthy buildings
unhealthy materials
unhealthy practices

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Indoor Air Quality

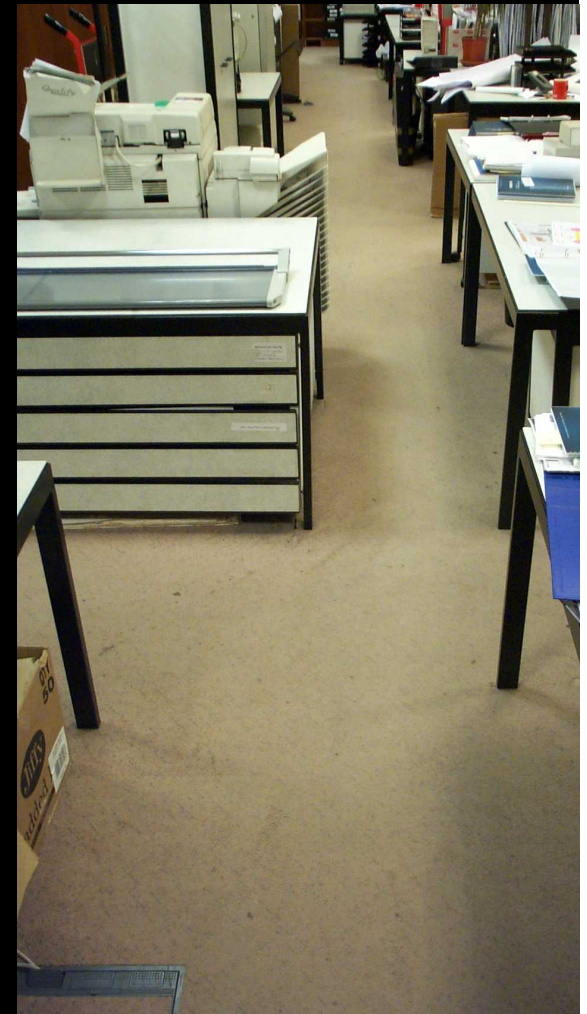
- We spend a lot of time indoors
 - Often the air inside is worse than outdoors
- Off-gassing from Carpets, paints and furniture
 - High VOC finishes
 - Adhesives & Treatments
- If you can smell new carpets or paint then there are problems

Defra Consultation

- **GPP Government Public Procurement**
 - EU driven
- **UK standards being set higher**
 - But Nordic swan seen as too high
 - EU eco-label standard set but certificate not required
 - Mandatory for Central Government
 - Voluntary for Local Government
- **Furniture Industry Consultation meeting**
 - 16 Nov 2009
 - They want consistency across all requirements even if set high
- **Public consultation on draft standards**
 - imminent
- **Manufacturers comfortable with low ambitions in some areas**
- **Some reluctance to embrace all issues**

High plastic content flooring

- Vinyl (PVC) flooring
- Static electricity build up
- Carpet:
 - Vinyl backed
 - Sheep's wool with nerve toxins from dipping (Woolmark included)
 - Petrol-chemical based carpet



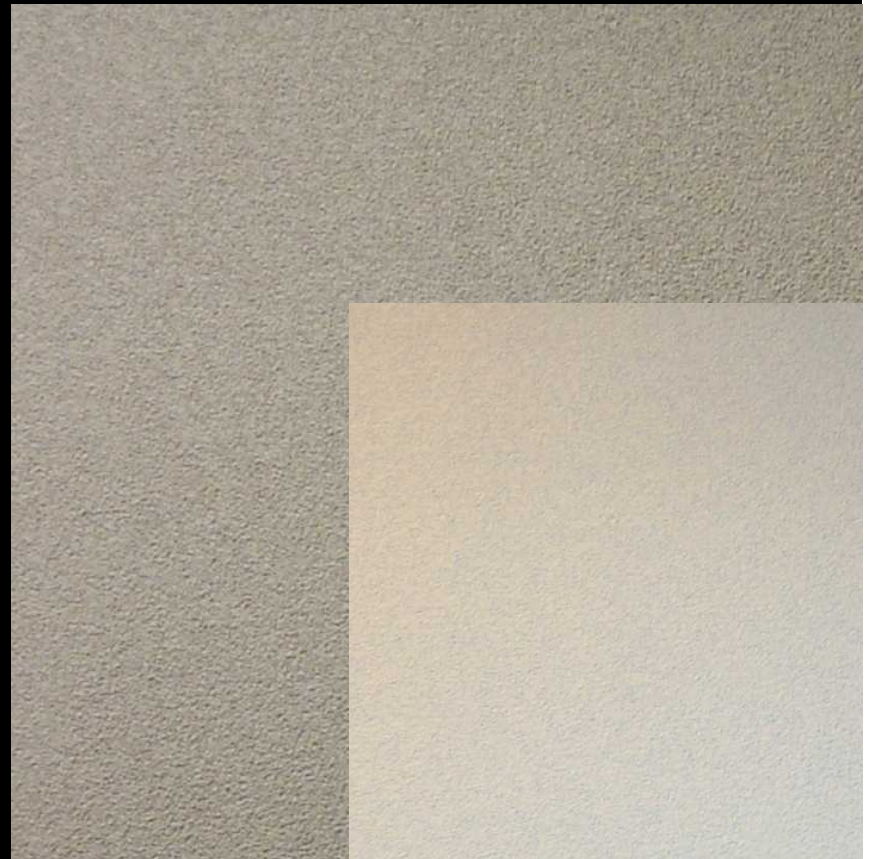
Other Issues

- Sick Building Syndrome
- Encourage the use of plants to condition air
- Encourage use of water, minimise static electricity
- Banned smoking (indoors) moved to front door
- Encourage fitness with bike to work schemes



Paints and lacquers:

- Synthetic plastics and solvent based paints with VOC (Volatile Organic content)
- Avoid all synthetic paints
- 2012 EU Directive controlled VOC in paints
- Avoid low VOC paints
- Lots more chemicals to act like previous paints
- Avoid Vinyl paints,
- Avoid Vinyl wall paper
 - Smoke hazard
- Avoid Solvent paints,
- Plastics attract dust, need cleaning



Office Furniture

- Chairs
- Tables
- Ergonomics Dynamic furniture
- Avoiding plastics
- Avoiding chemistry
- Avoiding off gassing
- Reducing materials

Plastics, PVC in particular

- Plastic laminate in furniture (formaldehyde)
- Formaldehyde and VOCs in adhesives in timber based boards in furniture, MDF, Chipboard and Plywood



Library (if you still have one)

- Binders many of PVC
- Off-gassing to internal air
- Phthalates (plasticiser)
- Unhealthy
- Toxins Dioxin released in fires



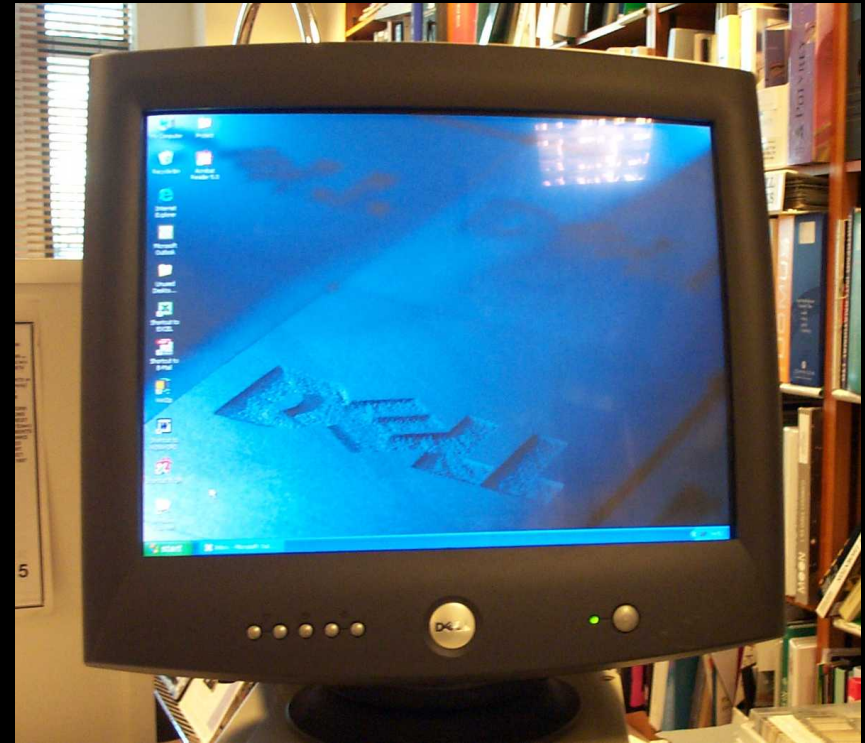
Office Project Filing (if you still do that)

- Binders many of PVC
- Off-gassing to internal air
- Same issues as previous



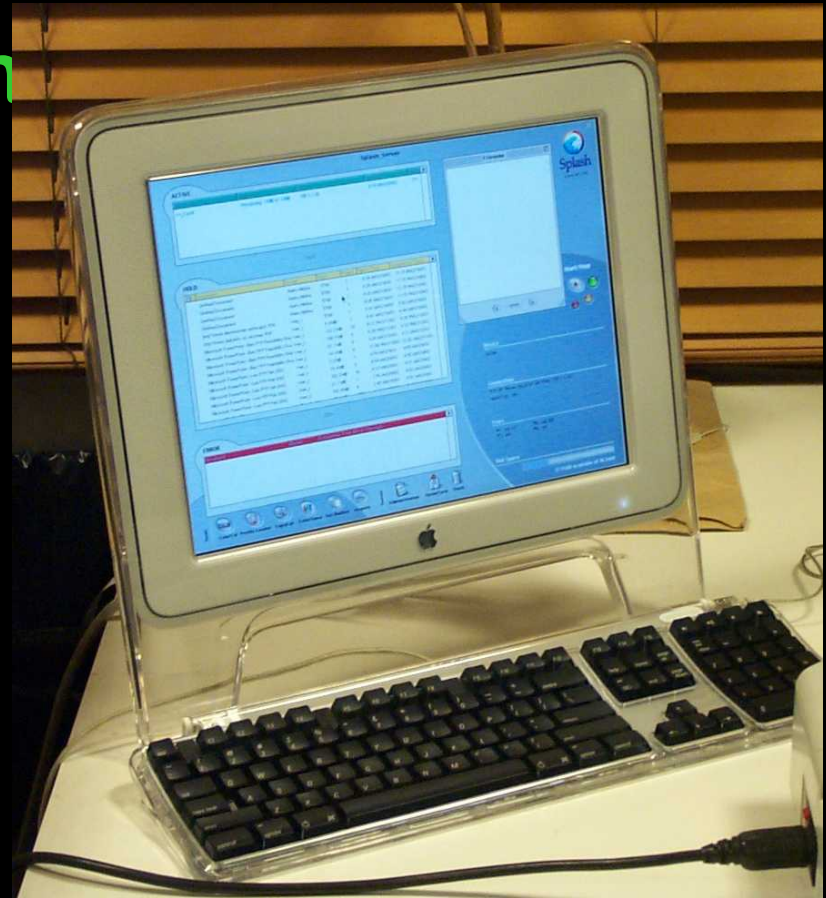
Ergonomics: Sitting at Monitors

- Avoid glare in monitors
- Keep face 28" away from CRT screen (they are in WEEE Waste recycling by now)
- Check ergonomics of table, chair and computer parts and user



LCD Monitor

- Minimum radiation from front and back
- Minimum heat generated
- Need less room
- Furniture down sizing



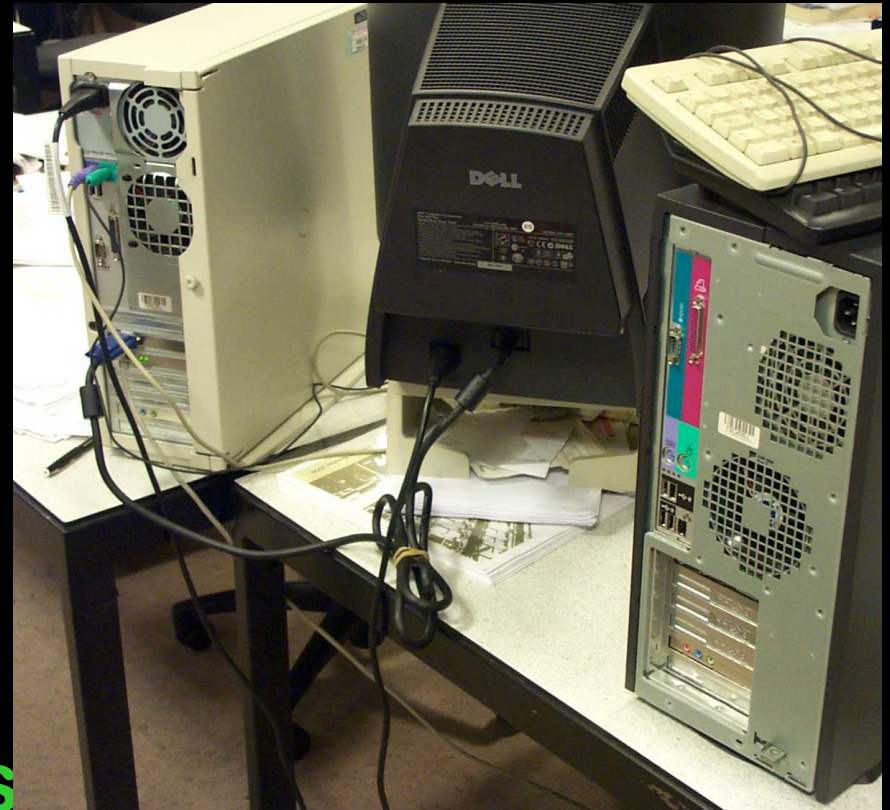
Copiers

- Keep photocopiers away from people, in closed rooms, with ventilation
- O₃ Ozone generated
- Take care with laser toner: Carcinogenic
- Wash hands thoroughly
- Latest laser toner ground even smaller
- New solid wax inks minimise packaging



Rear of Computers

- Radiation from all ports that are not in use
- Lead caps are available
- Nobody uses them
- You irradiate others
- Visa versa





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BRE Thermal Modelling

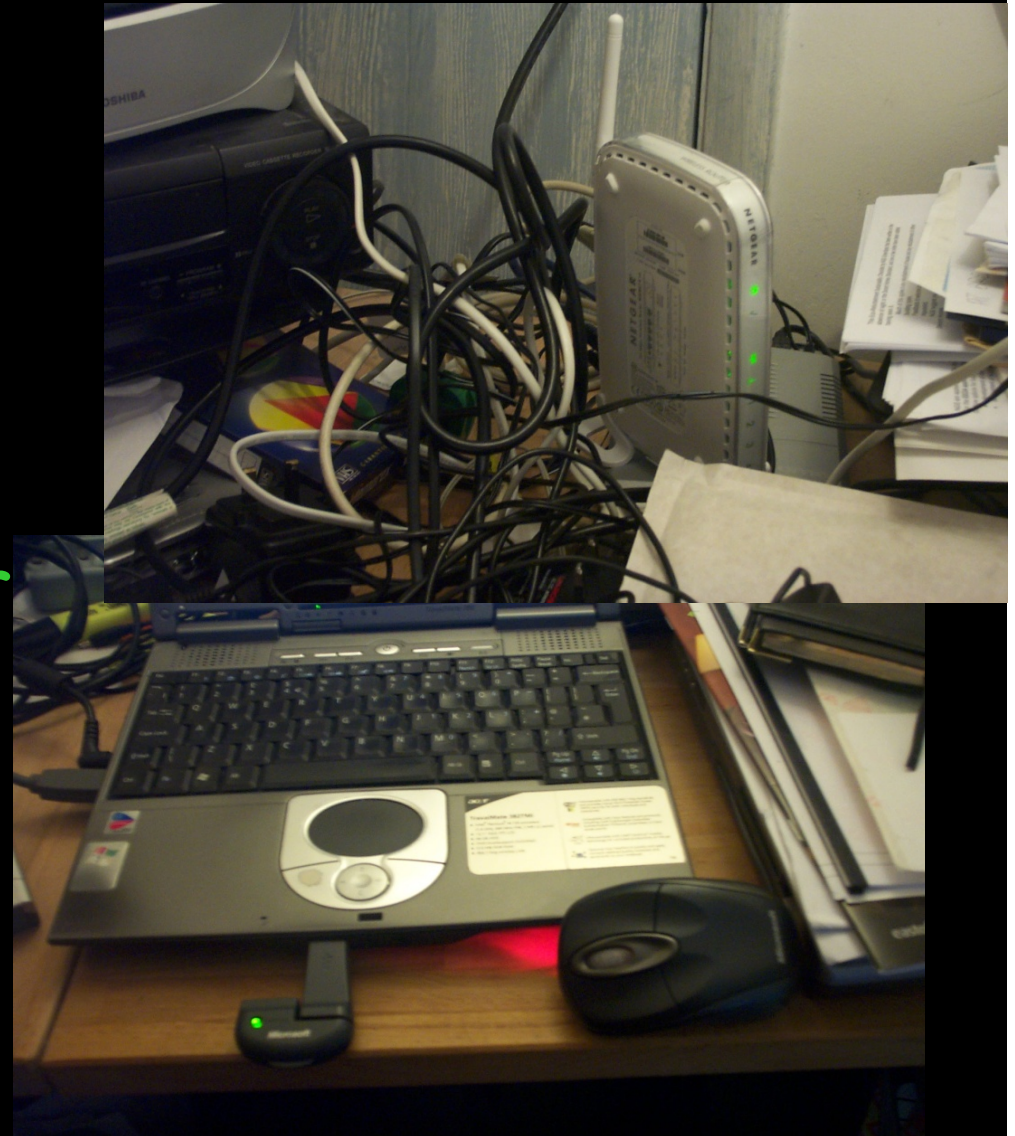
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SSO Switched Socket Outlets

- Electromagnetic radiation
- Radiation emanates if switched on with no plug in socket
- Always switch them off if not in use
- Contracts: leave switched off
- Especially if indicator lights included

Infrared and Wireless Networks

- Stick to wires
- Don't go wireless
- Avoid Radio or Infrared
- Don't irradiate your staff
- Infrared Mouse too
- Bluetooth?



Graphics Department

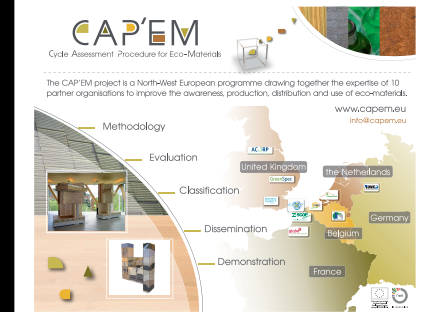
- Solvents
- Past: CFC propellants
- Ozone Depletion Potential
- Alternatives available now
- Hazardous waste
- Some domestic waste segregation
- Not segregated yet
- Avoid staff abuse
- Extract away from occupants do not recirculate
- Humidity tolerance?





Green Display wall

- Green Graphics
- Exhibition Displays, Murals, Pictures
- Cardboard with Honeycomb core
- 10 mm thick lightweight and strong
- 2.5 x 1 m printed £100 (2010)
- Cut for concertina folding easy delivery



Ergonomics

Sick Building Syndrome, Defra Furniture Consultation,
Dematerialisation, RSI Repetitive Strain Injuries, CTS
Carpels Tunnel Syndrome, ULD Upper Limb Disorders
Health & Safety v Ergonomics Chair & Desk design

UN SDG 3

Good Health & Wellbeing





Furniture Design

Approaches to Furniture Design

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Ergonomics & Wellbeing

- Manual handling: weight and reach
- Calculators and Computers
 - RSI Repetitive Strain Injuries,
 - Repetitive activity (keyboards/mice + bad sitting and posture)
 - CTS Carpels Tunnel Syndrome, typing needed wrist support
 - ULD Upper Limb Disorders embraces above and more
- Ergonomics Chair & Desk design
- Sick Building Syndrome
 - Many contributing factors, none pinpointed by H&SE
 - Toxic chemistry in: nerve toxins in carpets, fire protection in upholstery, VOC in paint, formaldehyde in timber furniture adhesives and binders
- Green Public Procurement
 - Defra Furniture Stakeholder Consultation (chemicals in upholstery)
 - Office Chair Dematerialisation

Person Specific Ergonomics

- H&S championed good posture at work
- Ergonomics of working at desks and computers
- Induction to offices included 19 stage tailoring a chair and all of its settings to fit the user,
- Chair size, seat height, back rest, arm rests, lumbar support, feet supports, etc.

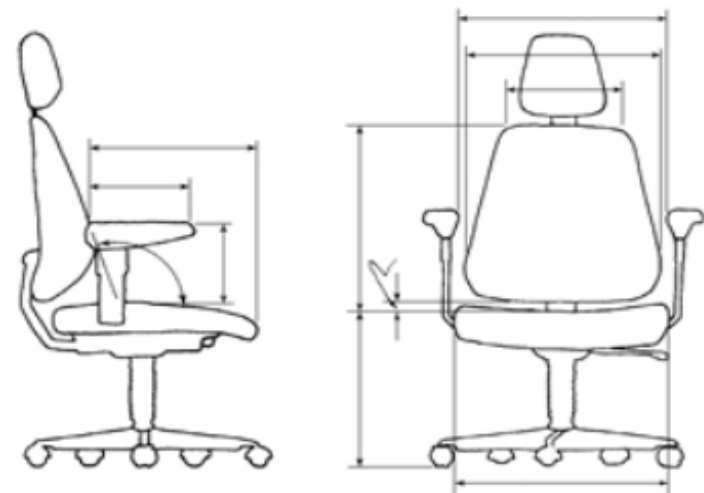
How to fit an ergonomic chair

[Home](#) > [Online Shop](#) > [Articles](#) > [Office ergonomics](#)

No chair is equally well suited for all body types. The perfect chair for a 6'2" computer programmer may be ineffective and even harmful if used for long periods by a 5'5" dentist. Your personal ergonomic chair should comfortably fit your unique body-type.

This guide highlights the fit you should look for when choosing your ergonomic chair.

1. [Body weight tolerance](#)
2. [Seat height](#)
3. [Seat depth](#)
4. [Seat width](#)
5. [Seat angle](#)
6. [Seat cushion](#)
7. [Backrest height and width](#)
8. [Backrest support contour](#)
9. [Backrest height adjustment](#)
10. [Backrest pivot](#)
11. [Seat-to-backrest angle](#)
12. [Adjustment controls](#)
13. [Armrest height](#)
14. [Armrest length](#)
15. [Distance between armrests](#)
16. [Swivel](#)
17. [Base](#)
18. [Casters and glides](#)
19. [Upholstery](#)



3 Sizes fits all
Ultimate adaptability
Added extras



Agile Working

KM, Ownership of Information, Paperless Office, Clear Desk,
IT developments, Homeworking, Hot Desking, Agile Working
no ownership of space v Ergonomics Health & Safety

UN SDG 3

Good Health & Wellbeing



Evolution towards Agile Working

- Electronic Calculators
- Mobile phone
 - (started brick size + couplers, shrank to egg size before iPhone and now foldable screen)
- IBM PC enabled > Apple Mac revolutionized > Amstrad laptop hauled up anchors
- Paperless Office (possible but remains and aspirational)
- Clear Desk Policy, De-cluttering, De-personalizing, De-humanizing work spaces
- Corporate Knowledge, Ownership of Information & Knowledge Management
- IT developments (paperless office possible)
 - Networks, Routers, Broadband
 - Wi-fi and other wireless technology (comes with electromagnetic radiation risks)
- Ergonomic Seating and Desks driven by Health & Safety
- Ipod > iphone (smart phone) > ipad (tablet)
 - giant leap forwards in access to technology, information and freedom to roam
- Home, on the road, on site, at client working & hot desking back at office
- Agile Working: no desk of your own, sharing all with all, bad ergonomics again, needs better cleaning regime
- Coronorvirus: Do not Agile work: cleaning will not be good enough

Agile Working

- **No ownership of space unless dedicated IT Platform or Hard Wiring necessary**
 - (accounts, digital printing, PC software in Apple offices)
 - Working with strangers and not in teams
 - Needs more team building activity
 - Needs Monday morning meetings Friday wine downs
- **Seamless portable IT and support essential**
- **Different work activity and furniture scenarios**
 - Excess capacity seats and desks essential
 - Hot deskers need more integration
- **Loss of Ergonomic Health & Safety**

Agile Working IT

- Uncluttered floor without Pedestal units
- Good wire management
- Hidden but accessible cable trays
- 4 gang switched socket outlet extension leads with spare capacity for laptops
- 2 in use and default all 4 switched on just in case
- Electromagnetic radiation on 24/7/356
- Power demand from all computers even when turned off
- 2 redundant SSO lights and computers need another power station running 24/7/356
- Agile working gives me a chance to turn off redundant SSO one work station at a time one day at a time
- Some cannot be turned off

Non-specific chairs

- Agile working denies individuals support for their individual frames
- Musical chairs every morning is not practical
- Agile working denies all the benefits gained by H&S and chair ergonomics
- Apparent little differences can make a big difference to wellbeing and productivity



Healthy & Green Furniture

Furniture Fittings IT Equipment

Defra Public Consultation

- Green Public Procurement
 - EU Directives
 - UK Over ambition for Government Departments
- Consultation on upholstery materials
 - Chemicals for fire protection
 - Unhealthy staff and offices
- Industry response:
 - How much chemistry can we keep using
 - How ill can we keep making people
 - Or dematerialize the chair

Herman Miller Aeron Chair

- 67% recycled parts
- 100% recycled aluminium frame
- (95% better than virgin: energy, materials, water and air)
- Dematerialises conventional chair construction
- Designed for disassembly
- 10 year design life
- Repairable
- ISO labelled for recycling
- Recyclable
- Improved Life Cycle Assessment



Herman Miller Mirra Chair

- Dematerialises conventional chair construction
- Ergonomic design
- Designed for disassembly
- ISO labelled for recycling
- Recyclable
- Repairable
- 1 piece plastic back rest
- Asked chemists for new plastic
 - 100% recyclable
 - Forever
 - They got it



NGS

GreenSpec

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Steelcase 'Please'

office chair

Please looks different to every other office chair thanks to its unique two-back system - a system which offers you unparalleled levels of comfort. Please is a truly well-balanced phenomenon - balancing comfort and beauty , freedom of movement and total control , precision and intuitive use of the adjustment controls, manufacturing quality and environmental responsibility - we could go on!

From a sustainability angle, Please was eco-designed. It has 30% less components than its preceding model as well as being 4kg lighter. In addition, we have created a model which uses 3D Tech fabric (Steelcase patented formula) in the upholstery which increases comfort and reduces the amount of foam used in the chair.

Please is also accompanied by an Environmental Product Declaration (ISO14025) This is the first declaration of its kind awarded to office furniture and no other manufacturer in our field has certification of such a high standard.

Finally, it is highly recyclable (99.1%) and has been manufactured in a responsible location; our plant in Sarrebourg, France which is ISO14001 compliant.

greener than:	n/a
standards:	n/a
BRE Ecopoints:	unrated (but see EPD below)
downloads:	<div> Environmental Product Declaration (178k) </div> <div> Brochure (2.3Mb) </div>
specification:	n/a
recycled content:	none
cost commentry:	n/a
manufactured in:	France

Done

Internet

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Please is smartly designed to ensure the highest quality and reliability, as well as long life. Our new generation chair comes complete with the standard **Steelcase 15 year parts and labour* warranty** and complies with (and, has the certification!) **all European quality standards.** The considered precision is inherent in every aspect of Please, proving that beauty is more than just skin deep.



Environmental responsibility begins at the product design stage. Steelcase reviews **eco-design principles** before the product development process starts. This leads to improved products with a **better environmental performance.** The new generation Please chair is a great example – we've significantly reduced the weight of the chair – from 24kgs to 20kgs by reducing the number of components by 30% and by the intelligent use of raw materials. New Please chair contains no PVC, no glue on the seat pan. The new generation Please chair is 99,1% recyclable.

Moreover, to convey clear and transparent information about the environmental performance of products during their entire life cycle, Steelcase provides an **Environmental Product Declaration (EPD)** (ISO/TR 14025). Based on the Life Cycle Assessment (ISO 14040-43), the EPD is a dynamic communication tool for science-based, verified and comparable environmental information and data.

Please is manufactured in our award-winning, ISO 14001 certified seating factory in Sarrebourg, France – which has been recognised for its outstanding contribution to recycling, waste reduction and low-impact manufacturing.

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Done Internet

Accessibility

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Good Health & Wellbeing





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Disability Discrimination Act DDA

REPLACED BY EQUALITY ACT

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Information Sources

UN SDG 4 Quality Education



Magazine

- A Greener Office (UK)
- Jane Marshall
- Features Editor
- www.agreeneroffice.co.uk
- Sustainable FM

Information Sources

- Etheco
- <https://www.etheco.com>
- on-line green equivalent of Which? Magazine
- Ethical Consumer Magazine
- <https://www.ethiscore.org/home.aspx>
- Good Shopping Guide
- <https://www.thegoodshoppingguide.co.uk/>

London Remade

- **Mayors Green Procurement Code**
 - **Business Recycling Campaign** grown into
 - **Business Greening Campaign**
 - **Carbon Reduction Commitment**
 - **No longer exists**

Envirowise

- **Many Publications**
 - Exchange for contact details
- **Office Audits for free**
- **Campaigns**
 - Efficiency
 - Water

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- Brian Murphy ONC HNC Construction, BSc Dip Architecture (Hons+Dist)
 - Technician and Architect by Training 45 years
 - Specification Writer by Choice 37 years
 - Environmentalist by Actions 22 years
 - Writer and Educator as a Calling 15 years
 - Number Cruncher by Necessity 10 years
- Greening up my act since 1999
- Founded National Green Specification 2001
- Launched www.greenspec.co.uk 2003
- Created: GBE at <https://greenbuildingencyclopaedia.uk> 2012 – 2021
- Created: GBL Learning: <https://GBELearning.com> 2020 - 2021
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- GoogleMyBusiness: [National Green Specification](#)
- Pinterest: [Brian Murphy • GBE Green Building Encyclopaedia](#)
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- [National Green Specification](#)